BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3 Note remarks Test sheet : MAN 11,9 G7 : 11.12.87 : 0-60-120-180-240-300 Edition Phasing : 18.8.87 Replaces Tolerance + - D : ISO-4113 Test oil : 0.50 (0.75) Combination no. Time to cyl. no. : 6 : 0 402 036 066 BASIC SETTING Injection pump Pump designation : PES6P110A720/3LS477-1st speed rpm: 800 EP type number : 0 412 016 071 Rack travel in mm : 11.70...11.80 Governor Governor design. : RQ250/1100PA845 Del.quantity cm3/: 12.3...12.6 Governer no. : 0 421 801 380 100 s: (12.0...12.8) Customer-spec. information : MAN Customer cm3 : 0.4Spread : D2866 F/UH Engine 100 s: (0.7) : 177.0 1st version kW rpm : 250.0 Rated speed : 2200 2nd speed Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 1.5...2.0 TEST BENCH REQUIREMENTS 100 s: (1.2...2.2) cm3 : 0.4 Test oil Spread inlet temp. OC 100 s: (0.7) : 38...42 GUIDE SLEEVE POSITION Overflow valve : 1 417 413 025 Control-lever position Degree: -2 rpm : 600 Inlet press., bar: 1.50 Speed Rack travel in mm : 19.20...20.80 Test nozzle holder : 0 681 343 009 FULL LOAD DELIV. AT FULL LOAD STOP assembly Opening 1st version pressure, bar : 172...175 rpm : 800 Speed : 123.0...126.0 Del.quantity 1000 : (120.5...128.5) Test lines : 1 680 750 015 : 4.00 cm3 Spread 1000 : (7.50) Outside diameter RATED SPEED x Wall thickness x Length mm : 6.00x1.50x600 1st version (A) Injection pump setting values Insp. values in parentheses Setting point: Set equal delivery quant. rpm per values ____ Rack travel in mm: 20.0 BEGINNING OF DELIVERY Testing: 1st rack travel in: 10.70 Test pressure, bar: 30...32 Speed rpm : 1145...1160 : 3.50...3.60 2nd rack travel in: 4.00 Prestroke mm

rpm : 1230...1260

Speed

: (3.45...3.65)

4th rack travel in: 1350 Speed rpm : 0.00...1.00 LOW IDLE 1 Setting point w/out bumper spring rpm : 250° Rack travel in mm: 6.1 Testing: rpm : 100 Speed Minimum rack trave: 7.60 rpm : 250 Speed Rack travel in mm: 6.00...6.20 Rack travel in mm: 2.00 rpm : 320...360 Speed TORQUE CONTROL Dimension a mm : -Torque control curve - 1st version 1st speed rpm : 800 Rack travel in m: 12.20...12.30 2nd speed rpm : 1100 Rack travel in m: 12.10...12.30 START CUT-OUT Speed 1/min: 170 (190) FUEL DELIVERY CHARACTERISTICS 1st version rpm : 1100 Speed Del.quantity cm3/: 132.0...138.0 1000 s: (129.0...141.0) Speed rpm : 500 Del.quantity cm3/ : 117.0...123.0 1000 s: (114.0...126.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.70 rpm : 1145...1160 Speed STARTING FUEL DELIVERY

Del.quantity cm3/: 15.0...20.0 1000 s: (12.5...22.5) cm3 : 4.50 Spread 1000 s: (7.50)

Remarks:

: MAN-NR. 2-7821

Speed

LOW IDLE

Speed

rpm_ : 100 Del.quantity cm3/: 110.0...130.0

rpm : 250 Rack travel in mm : 6.00...6.20

1000 s: (106.0...134.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 11.9 B2 Edition : 11.12.87 Replaces : 18.8.87 : ISO-4113 Test oil : 0 402 036 067 Combination no. Injection pump Pump designation : PES6P110A720/3LS477-: 0 412 016 071 EP type number Governor Governer no. : 0 421 813 593

Governor design. : RQV300...1100PA846

: D2866 F

Customer-spec. information Customer

: 177.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve

: 1 417 413 925

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

Engine

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 9.00...12.00

Firino order : 6-2-4-1-5-3

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 800 1st speed

Rack travel in mm : 11.70...11.80

Del.quantity cm3/: 12.3...12.6

100 s: (12.0...12.8)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 1.5...2.0

100 s: (1.2...2.2)

Spread cm3 : 0.4100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL rpm : 250 1st speed

travel mm : 1.10...1.30

rpm : 450 2nd speed

: 2.90...3.30 rpm : 900 travel mm

3rd speed

: 5.80...6.20 travel mm

4th speed rpm : 1100

: 7.50...7.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 800 Speed

: 123.0...126.0 Del.quantity

1000 : (120.5...128.5)

cm3 : 4.00 Spread

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 10.70

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1240...1270 Speed

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 15...23

Testing:

Speed rpm : 100

Minimum rack trave: 7.50

Speed rpm : 300

Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

rpm : 305...460 Speed

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 1100 Speed

Del.quantity cm3/: 132.0...138.0 1000 s: (129.0...141.0)

rpm : 500 Speed

Del.quantity cm3/: 117.0...123.0 1000 s: (114.0...126.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 110.0...130.0

1000 s: (106.0...134.0)

LOW IDLE

A04

rpm : 300 Speed

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 15.0...20.0 1000 s: (12.5...22.5)

cm3 : 4.50 Spread

1000 s: (7.50)

Remarks:

: MAN-NR. 2-7822

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9A28 : 11.12.87 Edition : 31.7.87 Replaces : ISO-4113 Test oil

Combination no. : 0 402 036 069

Injection pump

Pump designation : PES6P120A720/3LS470-

: 0 412 026 051 EP type number

Governor

Governor design. : RQ300/1100PA679-2

Governer no. : 0 421 801 402

Customer-spec. information Customer

: D2866LUL/290 Engine

: 213.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90

: (2.75...2.95) Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 750 1st speed

Rack travel in mm : 10.60...10.70

Del.quantity cm3/: 18.3...18.5

100 s: (18.0...18.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm : 5.0...5.2

Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.1)

cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600 Speed

Rack travel in mm: 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

Aneroid pressure h: 1000

: 183.0...185.0 Del quantity

1000 : (180.0...188.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm: 20.0

Testing:

A05

1st rack travel in: 9.60 rpm : 1145...1160 Speed 2nd rack travel in: 4.00 Speed rpm : 1180...1210 4th rack travel in: 1350 rpm : 0.00...1.00 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300° Rack travel in mm: 5.1 Testing: rpm : 100 Speed Minimum rack trave: 6.60 rpm : 300 Speed Rack travel in mm : 5.00...5.20 Rack travel in mm : 2.00 rpm : 345...385 Speed TORQUE CONTROL Dimension a mm : 0.20 Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 10.60...10.70 2nd speed rpm : 750 Rack travel in m: 11.20...11.40 3rd speed rpm : 925 Rack travel in m: 10.70...11.00 Aneroid/Altitude Compensator Test 1st version Setting

rpm : 500 Speed Rack travel in mm: 1000

Contr.-rod trav.mm: 10.60...10.70

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 8.80...9.00 2nd pressure hPa : 210

Rack travel in m: 9.10...9.20 3rd pressure hPa : 375

Rack travel in m: 9.90...10.20

START CUT-OUT

Speed 1/min : 190 (210)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 rpm : 1100 Speed

Del.quantity cm3/: 190.0...196.0 1000 s: (187.0...199.0)

Aneroid pressure h: 1000 rpm : 650

Del.quantity cm3/: 174.0...180.0 1000 s: (171.0...183.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 119.0...121.0 1000 s: (116.0...124.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 225.0...245.0

1000 s: (221.0...249.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 5.00...5.20 Del.quantity cm3/: 12.0...18.0 1000 s: (9.0...21.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

: MAN-NR. 2-7878

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3 Note remarks Test sheet : MAN 11,9 G8 : 0-60-120-180-240-300 : 22.01.88 Edition Phasing Replaces : 6.11.87 Tolerance + - 0 Test oil : ISO-4113 : 0.50 (0.75) Combination no. : 0 402 036 072 Time to cyl. no. : 6 Injection pump BASIC SETTING Pump designation : PES6P110A720/3LS477rpm: 800 1st speed EP type number : 0 412 016 071 Rack travel in mm : 10.30...10.40 Governor Governor design.: RQ250/1100PA845-1 Governer no. : 0 421 801 423 Del.quantity cm3/: 9.1...9.4 Customer-spec. information 100 s: (8.8...9.6) : MAN Customer Spread cm3 : 0.4 : D2566IUH/205 Engine 100 s: (0.7) 1st version kW : 150.0 rpm : 250.0 : 2200 2nd speed Rated speed Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.5...2.0 TEST BENCH REQUIREMENTS 100 s: (1.2...2.2) cm3 : 0.4 Test oil Spread inlet temp. °C : 38...42 100 s: (0.7) Overflow valve GUIDE SLEEVE POSITION : 1 417 413 025 Control-lever position Degree: -2 rpm : 600 Inlet press., bar: 1.50 Speed Rack travel in mm : 19.20...20.80 Test nozzle holder FULL LOAD DELIV. AT FULL LOAD STOP : 0 681 343 009 assembly Opening 1st version Speed rpm : 800 pressure, bar : 172...175 : 91.0...94.0 Del.quantity 1000 : (88.5...96.5) cm3 : 4.00 Test lines : 1 680 750 015 Spread 1000 : (7.50) Outside diameter x Wall thickness RATED SPEED : 6.00x1.50x600 x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Setting point: Set equal delivery quant. Speed rpm : 600 per values Rack travel in mm: 20.0

Testing:

Speed

Speed

1st rack travel in: 9.30

2nd rack travel in: 4.00

rpm : 1145...1160

rpm : 1205...1235

A07

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

: 3.50...3.60

: (3.45...3.65)

4th rack travel in: 1350 Speed rpm : 0.00...1.00 LOW IDLE 1 Setting point w/out bumper spring rpm : 250 Speed Rack travel in mm: 6.0 Testing: rpm : 100 Speed 7 Minimum rack trave: 7.50 rpm : 250 Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 Speed rpm : 315...355 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 800 Rack travel in m: 10.80...10.90 2nd speed rpm : 1100 Rack travel in m: 10.70...10.90 START CUT-OUT 1/min: 170 (190) Speed FUEL DELIVERY CHARACTERISTICS 1st version rpm : 1100 Speed Del.quantity cm3/: 103.0...107.0 1000 s: (100.0...110.0) Speed rpm : 500 Del.quantity cm3/: 81.0...85.0 1000 s: (78.0...88.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.30 rpm : 1145...1160 Speed STARTING FUEL DELIVERY rpm : 100 Speed

Del.quantity cm3/: 110.0...130.0

rpm : 250

Rack travel in mm : 5.90...6.10 Del.quantity cm3/ : 15.0...20.0

1000 s: (106.0...134.0)

1000 s: (12.5...22.5)

Spread cm3 : 4.50 1000 s: (7.50)

Remarks:

APPLICATION

0mn ibus

A08

LOW IDLE

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.80...2.90 Prestroke mm : (2.75...2.95) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3 Test sheet : MAN 11,9A31 Edition : 18.12.87 Replaces : ISO-4113 Test oil : 0-60-120-180-240-300 Phasing Combination no. : 0 402 036 073 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PES6P120A720/3LS470-Time to cyl. no. : 6 EP type number : 0 412 026 050 BASIC SETTING Governor Governor design. : RQ300/1100PA813-4 1st speed rpm : 750 Governer no. : 0 421 801 425 Rack travel in mm : 12.50...12.60 Customer-spec. information Del.quantity cm3/: 23.8...24.0 Customer : MAN 100 s: (23.5...24.3) Engine : D2866KUH cm3 : 0.51st version kW : 265.0 Spread Rated speed : 2200 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0 Rack travel in mm : 5.2...5.4 Test oil inlet temp. °C : 38...42 Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.1) Overflow valve cm3 : 0.8Spread : 1 417 413 025 100 s: (1.2) GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Degree: -2 Test nozzle holder rpm : 750 assembly : 1 688 901 019 Speed Rack travel in mm: 14.70...16.30 Opening FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 207...210 Orifice plate 1st version rpm : 750 diameter mm : 0,8 Speed Aneroid pressure h: 1000 Del.quantity : 250.0...243.0) : 1 680 750 067 Test lines : 5.00 Spread cm3 1000 : (9.00) Outside diameter x Wall thickness

: 6.00X1.50X1000

(A) Injection pump setting values

per values ____

Test or essure, bar: 30...32

BEGINNING OF DELIVERY

Insp. values in parentheses Set equal delivery quant. RATED SPEED

1st version

Setting point:

Speed rpm : 750 Rack travel in mm : 15.5

Testing:

x Length mm

1st rack travel in: 11.30 rpm : 1145...1160 Speed 2nd rack travel in: 4.00 rpm : 1185...1215 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Setting point w/out bumper spring rpm : 300' Rack travel in mm: 5.3 Testing: rpm : 100 Speed Minimum rack trave: 6.80 rpm : 300 Rack travel in mm : 5.20...5.40 Rack travel in mm : 2.00 rpm : 400...440 Speed TORQUE CONTROL Dimension a mm : 0.35 Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 12.30...12.40 2nd speed rpm : 750 Rack travel in m: 13.40...13.60 3rd speed rpm : 880 Rack travel in m: 13.10...13.30 4th speed rpm : 925 Rack travel in m: 12.50...12.80 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed Rack travel in mm: 1000 Contr.-rod trav.mm: 12.50...12.60 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 8.50...8.70 2nd pressure hPa : 190 Rack travel in m: 8.90...9.00 3rd pressure hPa : 520 Rack travel in m: 11.10...11.40 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

1st version

A10

Aneroid pressure h: 1000 rpm : 1100 Speed Del.quantity cm3/: 218.0...222.0 1000 s: (215.0...225.0) Aneroid pressure h: 1000 Speed rpm : 650 Del.quantity cm3/: 238.0...244.0 1000 s: (235.0...247.0) Aneroid pressure h: 20 rpm : 500 Speed Del.quantity cm3/: 191.0...197.0 1000 s: (188.0...200.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 119.0...121.0 1000 s: (116.0...124.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.30 rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 225.0...245.0 1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 12.0...18.0 1000 s: (9.0...21.0) Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

APPLICATION 0mnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.80...2.90 Prestroke mm : (2.75...2.95) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3 : MAN 11,9A32 Test sheet Edition : 18.12.87 Replaces : ISO-4113 Test oil : 0-60-120-180-240-300 Phasing Tolerance + - 0 Combination no. : 0 402 046 316 : 0.50 (0.75) Injection pump Time to cyl. no. : 6 Pump designation : PES6P120A720LS470 EP type number : 0 412 026 046 BASIC SETTING Governor Governor design. : RQ250/1100PA658-11 rpm : 750 1st speed Governer no. : 0 421 801 295 Rack travel in mm : 12.50...12.60 Customer-spec. information Del.quantity cm3/: 23.8...24.0 Customer : MAN 100 s: (23.5...24.3) Engine : D2866KF 1st version kW : 265.0 cm3 : 0.5Spread : 2200 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 250.0 2nd speed Rack travel in mm : 5.2...5.4 Del.quantity cm3/ : 1.2...1.8 Test oil inlet temp. OC : 38...42 100 s: (0.9...2.1) Overflow valve Spread cm3 : 0.8: 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -2 : 1 688 901 019 assembly Speed rpm : 600 Rack travel in mm : 19.20...20.80 Opening FULL LOAD DELIV. AT FULL LOAD STOP : 207...210 pressure, bar 1st version Orifice plate rpm : 750 diameter mm : 0,8 Speed Aneroid pressure h: 1000 : 238.0...240.0 Del.quantity 1000 : (235.0...243.0) Test lines : 1 680 750 067 cm3 : 5.00 Spread 1000 : (9.00) Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000 RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Setting point: per values Speed rpm : 600 Rack travel in mm: 20.0 BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testing:

1st rack travel in: 10.30

: 1145...1160 Speed rpm 2nd rack travel in: 4.00 rom: 1180...1210 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1

Setting point Wout bumper spring rpm : 250 Rack travel in mm: 5.3

Testing:

rpm : 100 Speed Minimum rack trave: 6.80 : 250 rpm Rack travel in mm : 5.20...5.40 Rack travel in mm : 2.00

: 315...355 Speed Lbw

TORQUE CONTROL Dimension a mm : 0.55

Torque control curve - 1st version

1st speed rpm : 750

Rack travel in m: 12.70...12.80

: 1100 2nd speed rpm

Rack travel in m: 11.30...11.40

3rd speed rpm : 915

Rack travel in m: 12.30...12.50

: 975 4th speed rpm

Rack travel in m: 11.60...11.90

Aneroid/Altitude Compensator Test

1st version Setting Speed rpm

: 500 Rack travel in mm: 1000

Contr.-rod trav.mm: 12.50...12.60

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.50

2nd pressure hPa : 150

Rack travel in m: 9.60...9.70

3rd pressure hPa : 400

Rack travel in m: 10.90...11.30

START CUT-OUT

Speed 1/min : 190 (210)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

: 1100 Speed rpm

Del.quantity cm3/: 214.0...218.0 1000 s: (211.0...221.0)

Aneroid pressure h: 1000

Speed rpm : 650 Del.quantity cm3/ : 239.0...245.0

1000 s: (236.0...248.0)

: 500

Del.quantity cm3/: 188.0...200.0 1000 s: (185.0...203.0)

Aneroid pressure h:

rpm : 500 Speed

Del.quantity cm3/: 139.0...141.0 1000 s: (136.0...144.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.30

rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 225.0...245.0

1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 12.0...18.0

1000 s: (9.0...21.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

: MAN-NR. 2-7599

: 2.80...2.90 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1-5-3-6-2-4 Test sheet : RVI 9,8 C : 26.02.88 Edition : 9.10.87 Replaces : 0-60-120-180-240-300 Test oil : ISO-4113 Phasing Tolerance + - 0 Combination no. : 0 402 046 331 : 0.50 (0.75) BASIC SETTING Injection pump Pump designation : PES6P120A320RS514 : 0 412 026 052 rpm : 550 EP type number 1st speed Governor Governor design. : RQV275...1000PA495-9 Rack travel in mm : 11.50...11.60 Governer no. : 0 421 813 672 Del.quantity cm3/: 16.5...16.7 Customer-spec. information 100 s: (16.2...17.0) Customer : RVI : MIDRO62045 K Spread cm3 : 0.5Engine : 176.5 100 s: (0.9) 1st version kW : 2000 Rated speed rpm : 275.0 2nd speed Rack travel in mm: 5.4...5.6 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) Test oil inlet temp. °C cm3 : 0.8 : 38...42 Spread 100 s: (1.2) Overflow valve : 1 417 413 025 (B) Setting of injection pump with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL 1st speed rpm : 275 Test nozzle holder : 1 688 901 019 : 1.40...1.60 travel mm assembly rpm : 500 2nd speed 3.80...4.30 travel mm Opening 3rd speed rpm : 800 pressure, bar : 207...210 travel mm : 5.70...6.10 4th speed rpm : 1000 Orifice plate : 7.10...7.30 : 0,8 travel mm diameter mm GUIDE SLEEVE POSITION : 1 680 750 067 Control-lever position Test lines Degree: -1 Speed rpm : 1120 Rack travel in mm : 15.20...17.80 Outside diameter x Wall thickness : 6.00x1.50x1000 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 550 Set equal delivery quant. Speed Aneroid pressure h: 1000 per values ____ Del.quantity : 165.0...167.0 1000 : (162.0...170.0) Spread cm3 : 5.00 BEGINNING OF DELIVERY Test pressure, bar: 25...27

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 47...55

Testing:

1st rack travel in: 9.00

rpm : 1075...1085 Speed 2nd rack travel in: 4.00

Speed rpm : 1165...1195

4th rack travel in: 1300

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever position degrees: 14...22

Testing:

Speed rpm : 200

Minimum rack trave: 7.20

Speed rpm : 275

Rack travel in mm : 5.40...5.60

CONSTANT REGULATION

Speed rpm : 285...400

TORQUE CONTROL

Dimension a mm : 1.50

Torque control curve - 1st version

1st speed rpm : 550 Rack travel in m: 11.50...11.60

2nd speed rpm : 1000

Rack travel in m: 9.90...10.00

3rd speed rpm : 700

Rack travel in m: 11.10...11.20

4th speed rpm : 850

Rack travel in m: 10.30...10.60

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500 Rack travel in mm : 1000

Contr.-rod trav.mm: 11.50...11.60

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.10...9.30

2nd pressure hPa : 280

Rack travel in m: 11.10...11.209.

3rd pressure hPa : 120

Rack travel in m: 9.80...10.00

START CUT-OUT

1/min : 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

rpm : 1000

Del.quantity cm3/: 153.0...157.0 1000 s: (150.0...160.0)

Aneroid pressure h:

Speed rpm: 500
Del.quantity cm3/: 106.0...108.0
1000 s: (103.0...111.0)

BREAKAWAY

1st version

rpm : 1075...1085 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 135.0...165.0 1000 s: (135.0...165.0)

LOW IDLE

rpm : 275 Speed

Rack travel in mm : 5.40...5.60

Del.quantity cm3/: 14.0...20.0

1000 s: (11.0...23.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

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Start-of-delivery mark 10.5° cam angle

after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1-5-3-6-2-4 : RVI 9,8 A 8 Test sheet : 11.12.87 Edition Replaces : 6.11.87 : 0-60-120-180-240-300 Test oil : ISO-4113 Phasing Tolerance + - 0 Combination no. : 0 402 046 332 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6P120A320RS419 EP type number : 0 412 026 037 rpm: 1050 1st speed Governor Rack travel in mm : 9.80...9.90 Governor design. : RQ275/1050PA844-1 Governer no. : 0 421 801 421 Del.quantity cm3/: 17.7...17.9 Customer-spec. information 100 s: (17.4...18.2) : RVI Customer cm3 : 0.5Spread : MIPRO62045A Engine 100 s: (0.9) 1st version kW : 210.0 : 2100 Rated speed rpm : 275.0 2nd speed Rack travel in mm : 4.8...5.0 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6) cm3 : 0.8 Test oil inlet temp. OC : 38...42 Spread 100 s: (1.2) Overflow valve : 1 417 413 025 GUIDE SLEEVE POSITION Control-lever position Degree: -2 Inlet press., bar: 1.50 Speed rpm: 600 Rack travel in mm: 19.20...20.80 Test nozzle holder assembly : 1 688 901 019 FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 207...210 1st version Speed rpm : 1050 Aneroid pressure h: 700 Orifice plate Del.quantity : 177.0...179.0 1000 : (174.0...182.0) Spread cm3 : 5.00 1000 : (9.00) : 0,8 diameter mm Test lines : 1 680 750 067 Outside diameter RATED SPEED x Wall thickness : 6.00x1.50x1000 1st version x Length mm Setting point: (A) Injection pump setting values Speed rpm : 600 Insp. values in parentheses Rack travel in mm: 20.0 Set equal delivery quant. per values ____ Testing: 1st rack travel in: 8.80 BEGINNING OF DELIVERY

Speed rpm : 1110...1120

2nd rack travel in: 4.00

Test pressure, bar: 25...27

Speed rpm : 1185...1215 4th rack travel in: 1300

rpm : 0.00...1.00 Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 275 Rack travel in mm : 4.2

Testing:

Speed rpm : 200 Minimum rack trave: 5.90 Speed rpm : 275

Rack travel in mm : 4.10...4.30 Rack travel in mm : 2.00

Speed rpm : 310...350

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Rack travel in mm : 700

Contr.-rod trav.mm: 9.80...9.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 8.00...8.20

2nd pressure hPa : 360

Rack travel in m: 9.40...9.50

3rd pressure hPa : 160

Rack travel in m: 8.40...8.60

START CUT-OUT

Speed 1/min: 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 650 Speed

Del.quantity cm3/: 162.0...168.0 1000 s: (159.0...171.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 105.0...107.0

1000 s: (102.0...110.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.80

Speed rpm : 1110...1120

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0

1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275 Rack travel in mm : 4.10...4.30

Remarks:

Start-of-delivery mark 9.5° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 M 1 : 12.02.88 Edition

Replaces

Test oil : ISO-4113

: 0 402 046 335 Combination no.

Injection pump

Pump designation : PES6P120A320R\$515 EP type number : 0 412 026 053

Governor

: RQV300...1150PA527-Governor design.

: 0 421 815 188 Governer no.

Customer-spec. information : RVI Customer

Engine : MIDRO62030C

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 14.3...14.5

100 s: (14.0...14.8)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 600.0 2nd speed

Rack travel in mm: 4.6...4.8 Del.quantity cm3/: 1.8...2.4

100 s: (1.5...2.7)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.70...2.10 travel mm

rpm : 900 2nd speed

: 5.80...6.20 travel mm

3rd speed rpm : 1150

: 7.40...7.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1225 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

: 143.0...145.0 Del.quantity

1000 : (140.0...148.0)

: 5.00 Spread cm3: (9.00) 1000

RATED SPEED

1st version

Control lever

position degrees: 57...65

Testing:

1st rack travel in: 9.20

Speed rpm: 1235...1245 2nd rack travel in: 4.00

Speed rpm : 1305...1335

4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

Speed ~ rpm : 100

Minimum rack trave: 6.20

Speed rpm : 300

Rack travel in mm : 4.40...4.60

CONSTANT REGULATION

rpm : 320...440 Speed

TORQUE CONTROL

Dimension a mm : 1.40

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 10.20...10.30

2nd speed rpm : 750

Rack travel in m: 9.20...9.30

3rd speed rpm : 500
Rack travel in m: 8.60...8.80
4th speed rpm : 350

Rack travel in m: 8.40...8.80

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 750 Speed

Del.quantity cm3/: 119.0...125.0 1000 s: (116.0...128.0)

rpm : 500 Speed

Del.quantity cm3/: 67.0...73.0 1000 s: (64.0...76.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

Speed rpm : 1235...1245

A18

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0

1000 s: (131.0...159.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 4.40...4.60 Del.quantity cm3/: 13.0...19.0 1000 s: (10.0...22.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Start-of-delivery mark 6° cam angle

after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks : 0-60-120-180-240-300 Test sheet : UNI 9,5 A Phasing Tolerance + - 0 : 23.2.88 : 10.85 Edition : 0.50(0.75) Replaces Test oil : ISO-4113 BASIC SETTING Combination no. : 0 402 046 757 rpm: 1100 1st speed Rack travel in mm : 11.70...11.80 Injection pump Pump designation : PES6P110A720RS3140 : 0 412 016 716 Del.quantify cm3/: 14.9...15.2 EP type number Governor 100 s: (14.6...15.4) Governor design. : RQV275...1100PA501-2 : 0 421 813 462 Governer no. cm3 : 0.4Spread Customer-spec. information : IVECO-UNIC 100 s: (0.75) Customer rpm : 275 Engine : 8460.21.102 2nd speed Rack travel in mm: 6.8...7.0 Del.quantity cm3/: 2.2...2.7 1st version kW : 192 100 s: (1.9...2.9) cm3 : 0.45 Rated speed : 2200 Spread 100 s: (0.75) TEST BENCH REQUIREMENTS (B) Setting of injection pump Test oil inlet temp. OC : 38...42 with governor Overflow valve GUIDE SLEEVE TRAVEL : 1 417 413 025 rpm : 250 1st speed : 1.0...1.2 travel mm rpm : 400 Inlet press., bar: 1.50 2nd speed : 2.7...3.0 travel mm rpm : 850 Test nozzle holder 3rd speed : 0 681 343 009 : 5.0...5.2 assembly travel mm 4th speed rpm: 1100 : 6.8...7.0 Opening travel mm : 172**...**175 pressure, bar GUIDE SLEEVE POSITION Control-lever position Test lines : 1 680 750 015 Degree: -1 rpm : 1260 Speed Rack travel in mm : 15.2...17.8 Outside diameter x Wall thickness FULL LOAD DELIV. AT FULL LOAD STOP : 6.00x1.50x600 x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Speed rpm : 1100 Set equal delivery quant. Aneroid pressure h: 700 : 149.0...152.0 Del.quantity per values ____ 1000 : (146.5...154.5 cm3 : 4.0 1000 : (7.5)

Spread

RATED SPEED

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30 : (3.15...3.35) Rack travel in mm : 9.00...12.00

1st version

Control lever

position degrees: 59...67

Testing:

1st rack travel in: 10.70

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1245...1275

4th rack travel in: 1400

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 11...19

Testing:

Speed rpm : 100

Minimum rack trave: 8.40

Speed rpm : 275

Rack travel in mm : 6.80...7.00

CONSTANT REGULATION

rpm : 280...525 Speed

Aneroid/Altitude

Compensator Test

1st version

Setting

rpm : 500 Speed

Rack travel in mm: 700

Contr.-rod trav.mm: 11.70...11.80

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 10.50...10.60

2nd pressure hPa : 310

Rack travel in m: 11.40...11.50 3rd pressure hPa : 280

Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm: 500

Del.quantity cm3/: 118.0...121.0

1000 s: (115.5...123.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

A20

: 1140...1150 Speed rpm

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...140.0 1000 s: (116.0...144.0)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks : RVI 6,2 A Test sheet : 0-60-120-180-240-300 Phasing Edition : 09.03.87 Tolerance + - 0 Replaces : 0.50 (0.75) : ISO-4113 Test oil BASIC SETTING Combination no. : 0 402 046 781 1st speed rpm: 1175 Injection pump Rack travel in mm: 13.80...13.90 Pump designation : PES6P110A320RS3182 EP type number : 0 412 016 719 Del.guantity cm3/: 10.2...10.5 Governor Governor design. : RQV275...1175PA833 : 0 421 813 583 100 s: (9.9...10.7) Governer no. Customer-spec. information cm3 : 0.4Spread Customer : RVI 100 s: (0.7) : MIDR 060226 Engine 2nd speed rpm : 275.0
Rack travel in mm : 6.2...6.4
Del.quantity cm3/ : 1.3...1.8 : 151.0 1st version kW Rated speed : 2350 100 s: (1.0...2.0) TEST BENCH REQUIREMENTS cm3 : 0.4Spread 100 s: (0.7) Test oil inlet temp. DC : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 025 GUIDE SLEEVE TRAVEL 1st speed rpm : 250 : 1.00...1.20 Inlet press., bar: 1.50 travel mm 2nd speed rpm : 450 Test nozzle holder : 3.50...3.90 travel mm : 0 681 343 009 3rd speed rpm : 800 assembly u avel mm : 5.50...5.90
4th speed rpm : 1175
travel mm Opening : 172...175 pressure, bar GUIDE SLEEVE POSITION : 1 680 750 067 Test lines Control-lever position Degree: -1 Outside diameter rpm : 1250 Speed x Wall thickness Rack travel in mm : 15.20...17.80 : 6.00x1.50x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Speed rpm : 1175 Aneroid pressure h: 1000 per values ___ Del.quantity : 102.0...105.0 1000 : (99.5...107.5) BEGINNING OF DELIVERY cm3 : 4.00 1000 : (7.50) Test pressure, bar: 25...27 Spread : 4.80...4.90 Prestroke mm : (4.75...4.65) RATED SPEED

Rack travel in mm : 9.00...12.00

1st version Control lever

position degrees: 51...59

Testing:

1st rack travel in: 12.80 rpm : 1245...1255 2nd rack travel in: 4.00

rpm : 1395...1425 Speed

4th rack travel in: 1500

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 11...19

Testing:

rpm : 200 Speed Minimum rack trave: 8.90 Speed rpm : 275

Rack travel in mm: 6.20...6.40

CONSTANT REGULATION

rpm : 375...480 Speed

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 500 Speed Rack travel in mm; 1000

Contr.-rod trav.mm: 13.80...13.90

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 10.80...10.90

2nd pressure hPa : 500 Rack travel in m: 13.10...13.20

3rd pressure hPa : 240

Rack travel in m: 11.80...12.00

START CUT-OUT

1/min: 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 : 700 Speed rpm

Del.quantity cm3/: 102.0...106.0

1000 s: (99.0...109.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 48.0...51.0 1000 s: (45.5...53.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80

rpm : 1245...1255 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 120.0...150.0

1000 s: (116.0...154.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 6.20...6.40 Del.quantity cm3/: 13.0...18.0 1000 s: (10.5...20.5)

cm3 : 4.50 Spread

1000 s: (7.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.50...3.60 Prestroke mm : (3.45...3.65) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : RVI 9,8 E Edition : 05.02.88 Replaces : ISO-4113 : 0-60-120-180-240-300 Test oil Phasing Tolerance + - 0 : 0 402 046 784 Combination no. : 0.50 (0.75) BASIC SETTING Injection pump : PES6P120A320RS3139 Pump designation EP type number : 0 412 026 718 rpm: 1000 1st speed Governor Governor design. : RQV275...1000PA728-2 Governer no. : 0 421 813 599 Rack travel in mm : 11.20...11.300 Del.quantity cm3/: 20.4...20.6 Customer-spec. information Customer : RVI 100 s: (20.1...20.9) : MIDR 062045 E Engine Spread cm3 : 0.5: 236.0 100 s: (0.9) 1st version kW : 2000 Rated speed 2nd speed rpm : 275.0 Rack travel in mm: 5.1...5.3 TEST BENCH REQUIREMENTS Del.quantity cm3/: 2.0...2.6 100 s: (1.7...2.9) Test oil inlet temp. °C : 38...42 cm3 : 0.8Spread 100 s: (1.2) Overflow valve : 1 417 413 025 (B) Setting of injection pump with governor Inlet press., bar : 1.50 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 250 : 1 688 901 019 assembly travel mm : 0.90...1.10 2nd speed rpm : 450 : 3.30...3.70 Opening travel mm 3rd speed rpm : 800 pressure, bar : 207...210 travel mm : 5.60...6.00 4th speed rpm: 1000 Orifice plate : 7.00...7.20 : 0,8 travel mm diameter mm GUIDE SLEEVE POSITION Test lines : 1 680 750 067 Control-lever position Degree: -1 rpm : 1170 Outside diameter Speed Rack travel in mm : 15.20...17.80 x Wall thickness : 6.00X1.50X1000 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 1000 Set equal delivery quant. Speed Aneroid pressure h: 1000 per values Del.quantity : 204.0...206.0 1000 : (201.0...209.0) BEGINNING OF DELIVERY cm3 : 5.00Test pressure, bar: 25...27 Spread

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 59...67

Testing:

1st rack travel in: 10.20

Speed rpm : 1065...1075

2nd rack travel in: 4.00

Speed rpm : 1180...1210

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 8...16

Testing:

rpm : 200 Speed

Minimum rack trave: 6.90 Speed rpm : 275

Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

rpm : 230...320 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Rack travel in mm: 1000

Contr.-rod trav.mm: 11.20...11.30

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 8.20...8.30

2nd pressure hPa : 320

Rack travel in m: 10.50...10.60

3rd pressure hPa : 160

Rack travel in m: 9.10...9.30

START CUT-OUT

1/mi.i : 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

rpm : 600

Del.quantity cm3/: 202.0...208.0

1000 s: (199.0...211.0)

Aneroid pressure h: -

rpm : 500 Speed Del.quantity cm3/: 93.0...97.0

1000 s: (90.0...100.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

rpm : 1065...1075 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0

1000 s: (136.0...164.0)

LOW IDLE

rpm : 275 Speed

Rack travel in mm : 5.10...5.30 Del.quantity cm3/ : 20.0...26.0 1000 s: (17.0...29.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Start-of-delivery mark 90 cam angle

after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : RVI 6,2 B : 0-60-120-180-240-300 Phasing Edition : 05.06.87 Tolerance + - 0 : 0.50 (0.75) Replaces Test oil : ISO-4113 Time to cyl. no. : 1 Combination no. : 0 402 046 785 BEGINNING OF DELIVERY DIFFERENCE Injection pump Pump designation : PES6P110A320RS3190 betw. rack trav. m: 4.50...5.00 & maximum rack tra: 18.0...21.0 Difference OCS : 4.00...6.00 EP type number : 0 412 016 720 Governor Governor design. : RQV275...1175PA833-1 Governer no. : 0 421 813 607 BASIC SETTING rpm: 1175 Customer-spec. information 1st speed Customer Rack travel in mm : 13.40...13.50 Engine : MIDR 060226 Del.quantity cm3/: 11.4...11.7 : 154.5 1st version kW 100 s: (11.1...11.9) : 2350 Rated speed TEST BENCH REQUIREMENTS cm3 : 0.4Spread Test oil 100 s: (0.7) inlet temp. °C : 38...42 2nd speed rpm : 275.0
Rack travel in mm : 4.0...4.2 Overflow valve Del.quantity cm3/: 1.5...2.0 : 1 417 413 025 100 s: (1.2...2.2) cm3 : 0.4Inlet press., bar : 1.50 Spread 100 s: (0.7) Test nozzle holder assembly : 0 681 343 009 (B) Setting of injection pump with governor Opening. pressure, bar : 172...175 GUIDE SLEEVE TRAVEL rpm : 250 1st speed : 0.90...1.10 travel mm rpm : 450 : 1 680 750 067 Test lines 2nd speed : 3.40...3.80 travel mm rpm : 800 Outside diameter 3rd speed x Wall thickness : 5.10...5.50 travel mm : 6.00x1.50x600 rpm : 1175 x Length mm 4th speed : 7.20...7.50 travel mm (A) Injection pump setting values Insp. values in parentheses GUIDE SLEEVE POSITION Set equal delivery quant. Control-lever position per values Degree: -1 rpm : 1330 Speed BEGINNING OF DELIVERY Rack travel in mm: 15.20...17.80 Test pressure, bar: 25...27 FULL LOAD DELIV. AT FULL LOAD STOP

Prestroke mm : 4.20...4.30 : (4.15...4.35)

Rack travel in mm: 18.00...21.00 I Speed rpm: 1175

1st version

A25

Aneroid pressure h: 1000 Del.quantity : 114.0...117.0 1000 : (111.5...119.5) cm3 Spread : 4.00 1000 : (7.50) RATED SPEED 1st version Control lever position degrees: 49...57 Testing: 1st rack travel in: 12.40 rpm : 1245...1255 Speed 2nd rack travel in: 4.00 rpm : 1400...1430 Speed 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 11...19 Testing: : 200 Speed rpm Minimum rack trave: 6.60 rpm : 275 Rack travel in mm : 4.00...4.20 CONSTANT REGULATION rpm : 250...320 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500
Rack travel in mm : 1000
Contr.-rod trav.mm: 13.40...13.50 Measurement Speed 1/min : 500 1st pressure hPa : -Rack travel in m: 10.60...10.80 2nd pressure hPa : 360 Rack travel in m: 12.60...12.70 3rd pressure hPa : 160 Rack travel in m: 11.50...11.80 START CUT-OUT 1/min : 195 (215)

1st version Aneroid pressure h: 1000 Speed : 700 rpm Del.quantity cm3/: 109.5...114.5 1000 s: (106.5...117.5) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 57.0...60.0 1000 s: (54.5...62.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.40 rpm : 1245...1255 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 90.0...110.0 1000 s: (86.0...114.0)

LOW IDLE

rpm : 275 Speed Rack travel in mm : 4.00...4.20 Del.quantity cm3/: 15.0...20.0 1000 s: (12.5...22.5) cm3 : 4.50Spread 1000 s: (7.50)

Remarks:

Speed

FUEL DELIVERY CHARACTERISTICS

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks : 0-60-120-180-240-300 Test sheet : RVI 6,2 C Phasing Edition : 30.03.87 Tolerance + - 0 : 0.50 (0.75) Replaces Test oil : ISO-4113 Time to cyl. no. Combination no. : 0 402 046 786 BASIC SETTING Injection pump Pump designation : PES6P110A320RS3191 rpm : 1250 1st speed EP type number : 0 412 016 721 Governor Rack travel in mm : 13.80...13.90 Governor design. : RQV275...1250PA833-2 : 0 421 813 608 Del.quantity cm3/: 8.4...8.7 Governer no. Customer-spec. information 100 s: (8.1...8.9) Customer : RVI cm3 : 0.4Spread Engine : MIDR 060226 100 s: (0.7) : 175.0 1st version kW rpm : 275.0 : 2500 Rated speed 2nd speed Rack travel in mm: 4.8...5.0 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.9...2.4 100 s: (1.6...2.6) cm3 : 0.4 Test oil Spread inlet temp. GC : 38...42 100 s: (0.7) Overflow valve (B) Setting of injection pump : 1 417 413 025 with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL rpm : 250 1st speed Test nozzle holder : 0.80...1.20 travel mm rpm : 450 : 0 681 343 009 2nd speed assembly : 3.00...3.40 travel mm rpm : 800 Opening 3rd speed : 4.60...5.00 pressure, bar : 172...175 travel mm rpm : 1250 4th speed : 7.50...7.70 travel mm : 1 680 750 067 Test lines GUIDE SLEEVE POSITION Outside diameter Control-lever position x Wall thickness Degree: -1 rpm : 1360 : 6.00x1.50x600 x Length mm Speed Rack travel in mm : 15.20...17.80 (A) Injection pump setting values FULL LOAD DELIV. AT FULL LOAD STOP Insp. values in parentheses Set equal delivery quant. 1st version per values Speed rpm : 1250 BEGINNING OF DELIVERY Aneroid pressure h: 1000 Del.quantity : 84.0...87.0 Test pressure, bar: 25...27 1000 : (81.5...89.5) cm3 Prestroke mm : 4.40...4.50 : 4.00 Spread

1000 : (7.50)

: (4.35...4.55)

Rack travel in mm: 18.00...21.00

RATED SPEED 1st version Control lever position degrees: 50...5824 Testing: 1st rack travel in: 12.80 rpm : 1315...1325 Speed 2nd rack travel in: 4.00 rpm : 1455...1485 Speed 4th rack travel in: 1600 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...18 Testing: Speed rpm : 200 Minimum rack trave: 7.10 Speed rpm : 275 Rack travel in mm : 4.80...5.00 CONSTANT REGULATION rpm : 280...320 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Rack travel in mm : 1000 Contr.-rod trav.mm: 13.80...13.90 Measurement Speed 1/min : 500 1st pressure hPa : -Rack travel in m: 13.10...13.20 2nd pressure hPa : 160 Rack travel in m: 13.50...13.60 3rd pressure hPa : 120 Rack travel in m: 13.20...13.40

1/min : 195 (215) FUEL DELIVERY CHARACTERISTICS Speed rpm : 750 Del.quantity cm3/ : 83.0...88.0 1000 s: (80.0...91.0)

Speed rpm : 500 Del.quantity cm3/: 59.0...62.0 1000 s: (56.5...64.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.80 Speed rpm : 1315...1325

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 90.0...110.0 1000 s: (86.0...114.0)

LOW IDLE

rpm : 275 Speed Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 19.0...24.0 1000 s: (16.5...26.5) Spread cm3: 4.50 1000 s: (7.50)

Remarks:

START CUT-OUT

1st version

Aneroid pressure h: 1000

Amenoic pressure h: -

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks : RVI 6,2 B 1 : 0-60-120-180-240-300 Test sheet Phasing Edition : 22.01.88 Tolerance + - 0 : 0.50 (0.75) Replaces : ISO-4113 Test oil Time to cyl. no. : 1 Combination no. : 0 402 046 788 BEGINNING OF DELIVERY DIFFERENCE Injection pump Pump designation : PES6P110A320RS3190 betw. rack trav. m: 4.50...5.00 EP type number & maximum rack tra: 18.0...21.0 Difference CS: 4.00...6.00 : 0 412 016 720 Governor Governor design. : RQV275...1175PA833-3 BASIC SETTING Governer no. : 0 421 813 656 rpm: 1175 Customer-spec. information 1st speed Customer Rack travel in mm : 13.40...13.50 : MIDR 060226D Engine Del.quantity cm3/: 11.6...11.9 1st version kW : 151.0 Rated speed : 2350 100 s: (11.3...12.1) TEST BENCH REQUIREMENTS Spread cm3 : 0.4100 s: (0.7) Test oil inlet temp. OC : 38...42 rpm : 275.0 2nd speed Rack travel in mm: 4.0...4.2 Overflow valve : 1 417 413 025 Del.quantity cm3/: 1.7...2.2 100 s: (1.4...2.4) cm3 : 0.4Inlet press., bar: 1.50 Spread 100 s: (0.7) Test nozzle holder : 0 681 343 009 assembly (B) Setting of injection pump with governor Opening GUIDE SLEEVE TRAVEL pressure, bar : 172...175 1st speed rpm : 250 : 0.90...1.10 travel mm Test lines : 1 680 750 067 rpm : 450 2nd speed travel mm : 3.40...3.80 rpm : 800 Outside diameter 3rd speed : 5.10...5.50 x Wall thickness travel mm rpm : 1175 x Length mm : 6.00x1.50x600 4th speed : 7.20...7.50 travel mm (A) Injection pump setting values GUIDE SLEEVE POSITION Insp. values in parentheses Set equal delivery quant. Control-lever position Degree: -1 per values rpm : 1330 Speed Rack travel in mm : 15.20...17.80 BEGINNING OF DELIVERY Test pressure, bar: 25...27 FULL LOAD DELIV. AT FULL LOAD STOP : 4.20...4.30 Prestroke mm : (4.15...4.35) 1st version rpm : 1175 Rack travel in mm : 18.00...21.00 Speed

B01

Aneroid pressure h: 1000 : 116.0...119.0 Del.quantity 1000 : (113.5...121.5) cm3 : 4.00 Spread 1000 : (7.50) RATED SPEED 1st version Control lever position degrees: 52...60 Testing: 1st račk travel in: 12.40 Speed rpm : 1245...1255 2nd rack travel in: 4.00 Speed rpm : 1400...1430 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 14...22 Testing: Speed : 200 rpm Minimum rack trave: 6.60 rpm : 275 Rack travel in mm : 4.00...4.20 CONSTANT REGULATION rpm : 250...320 Speed Aneroid/Altitude Compensator Test

1st version Setting rpm : 500 Speed Rack travel in mm : 1000

Contr.-rod trav.mm: 13.40...13.50

Measurement 1/min : 500 Speed

1st pressure hPa : -Rack travel in m: 10.10...10.30

2nd pressure hPa : 360 Rack travel in m: 12.60...12.70 3rd pressure hPa : 160

Rack travel in m: 11.00...11.40

START CUT-OUT

1/min : 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1000 : 700 Speed rpm

Del.quantity cm3/: 111.5...116.5 1000 s: (108.5...119.5)

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 51.0...54.0 1000 s: (48.5...56.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.40 rpm : 1245...1255 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 90.0...110.0

1000 s: (86.0...114.0)

LOW IDLE

rpm : 275 Speed

Rack travel in mm : 4.00...4.20 Del.quantity cm3/: 17.0...22.0 1000 s: (14.5...24.5)

cm3 : 4.50

Spread 1000 s: (7.50)

Remarks:

: 3.50...3.60 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.45...3.65) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : RVI 12,0 F2 : 05.02.88 Edition Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Tolerance + - 0 Combination no. : 0 402 046 791 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6P120A320RS3139 rpm: 950 EP type number : 0 412 026 718 1st speed Governor Rack travel in mm: 13.30...13.40 Governor design. : RQV275...950PA728-4 : 0 421 813 678 Governer no. Del.quantity cm3/: 24.9...25.1 Customer-spec. information 100 s: (24.6...25.4) : RVI Customer cm3 : 0.5 Engine : MIDR 063540 H Spread 1st version kW : 264.0 100 s: (0.9) : 1900 Rated speed 2nd speed rpm : 275.0 Rack travel in mm: 5.6...5.8 TEST BENCH REQUIREMENTS Del.quantity cm3/: 2.2...2.8 100 s: (1.9...3.1) Test oil inlet temp. OC : 38...42 cm3 : 0.8Spread 100 s: (1.2) Overflow valve : 1 417 413 025 (B) Setting of injection pump with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL 1st speed rpm : 250 Test nozzle holder : 1 688 901 019 : 1.00...1.20 assembly travel mm 2nd speed rpm: 450 : 3.30...3.80 travel mm Opening 3rd speed rpm : 800 pressure, bar : 207...210 : 5.80...6.00 travel mm 4th speed rpm : 950 Orifice plate : 6.80...6.90 diameter mm : 0,8 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 067 Control-lever position Degree: -1 rpm : 1140 Outside diameter Speed x Wall thickness Rack travel in mm : 15.20...17.80 : 6,00x1,50x1000 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 950 Set equal delivery quant. Speed per values ____ Aneroid pressure h: 1000 : 249.0...251.0 1000 : (246.0...254.0) Del.quantity BEGINNING OF DELIVERY : 5.00 cm3 Test pressure, bar: 25...27 Spread

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 58...66

Testing:

1st rack travel in: 12.30

rom : 1015...1025 Speed

2nd rack travel in: 4.00

rpm : 1160...1190 Speed

4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 8...16

Testing:

: 200 Speed rpm

Minimum rack trave: 7.40

: 275 rpm

Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

rpm : 295...400 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Rack travel in mm: 1000

Contr.-rod trav.mm: 13.30...13.40

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 9.50...9.60

2nd pressure hPa : 660 Rack travel in m: 12.60...12.70

3rd pressure hPa : 200

Rack travel in m: 10.30...10.50

START CUT-OUT

1/min : 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm: 600 Del.quantity cm3/: 255.0...261.0 1000 s: (252.0...264.0)

804

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 120.0...122.0

1000 s: (117.0...125.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.30

rpm : 1015...1025 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0

1000 s: (136.0...164.0)

LOW IDLE

rpm : 275 Speed

Rack travel in mm: 5.60...5.80 Del.quantity cm3/: 22.0...28.0 1000 s: (19.0...31.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Start-of-delivery mark 9^0 cam angle after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.30...4.40 Prestroke mm : (4.25...4.45) Rack travel in mm : 9.00...12.00 Note remarks : 6-2-4-1-5-3 Firing order Test sheet : MB 11,7 A11 Edition : 07.01.88 Replaces : 0-60-120-180-240-300 : ISO-4113 Test oil Phasing Tolerance + - 0 Combination no. : 0 402 046 793 : 0.50 (0.75) Injection pump Time to cyl. no. : 6 Pump designation : PES6P110A820LS3131 : 0 412 016 715 BASIC SETTING EP type number Governor Governor design. : RQ300/1100PA800-1 1st speed rpm: 1100 : 0 421 801 426 Governer no. Rack travel in mm : 9.90...10.00 Customer-spec. information Customer : DAIMLER-BENZ Del.quantity cm3/: 10.9...11.1 100 s: (10.6...11.3) Engine : 0M447h 1st version kW : 150.0 Spread cm3 : 0.4: 2200 Rated speed 100 s: (0.8) TEST BENCH REQUIREMENTS 2nd speed rpm: 300.0 Rack travel in mm: 7.1...7.3 Test oil Del.quantity cm3/: 1.4...2.0 inlet temp. OC : 38...42 100 s: (1.1...2.2) cm3 : 0.4 Overflow valve Spread : 1 417 413 025 100 s: (0.8) GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Degree: -1 Over flow quantity min. 1/h: 100...120 rpm : 600 Speed Rack travel in mm : 13.00...14.00 Test nozzle holder : 0 681 343 009 FULL LOAD DELIV. AT FULL LOAD STOP assembly Opening 1st version rpm : 1100 pressure, bar : 172...175 Speed : 109.0...111.0 Deliquantity 1000 : (106.5...113.5) cm3 : 4.00Test lines : 1 680 750 015 Spread 1000 : (8.00) Outside diameter x Wall thickness RATED SPEED : 6.00x1.50x600 x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Setting point: rpm : 600 Set equal delivery quant. Speed per values ____ Rack travel in mm: 13.5 BEGINNING OF DELIVERY Testing: 1st rack travel in: 8.90 Test pressure, bar: 25...27

Speed rpm : 1145...1160

2nd rack travel in: 4.00 Speed rpm : 1200...1230 4th rack travel in: 1300 Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.2

Testing:

rpm : 200 Speed Minimum rack trave: 9.50

Speed rpm : 300
Rack travel in mm : 7.10...7.30
Rack travel in mm : 2.00 rpm : 360...400 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/: 80.0...84.0
1000 s: (77.0...87.0)

Spread cm3 : 6.001000 s: (9.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.90

rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

APPLICATION 0mn ibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 9,6 V 1 Edition : 29.01.88

Replaces

Test oil : ISO-4113

Combination no. : 0 402 046 794

Injection pump

Pump designation : PES6P110A720RS3104

EP type number : 0 412 016 712

Governor

Governor design. : RQV300...1075PA862-1

Governer no. : 0 421 813 684

Customer-spec. information

Customer

Engine : BF6L513 R/C

: 150.0 1st version kW Rated speed : 2150

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

B07

: 0-60-120-180-240-300 Phasing

Tolerance + - D : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1075 1st speed

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 13.1...13.3

100 s: (12.8...13.6)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 7.6...7.8

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.4)

cm3 : 0.4Spread

100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpin : 300 1st speed

travel mm : 1.10...1*.5*0

rpm : 450 2nd speed

: 2.60...3.20 travel mm

грт : 700 3rd speed

: 4.80...5.40 travel mm

4th speed rpm : 1110

: 7.90...8.10 travel mm

5th speed rpm : 1230

: 9.00...9.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1040 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075

Del.quantity : 131.0...136.0)

cm3 : 4.00 Spread

1000 : (7.50)

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RATED SPEED
1st version
Control lever
 position degrees: 49...57
Testing:
1st rack travel in: 11.40
  Speed rpm : 1110...1120
2nd rack travel in: 4.00
  Speed rpm : 1215...1225
4th rack travel in: 1350
  Speed rpm : 0.00...1.00
LOW IDLE 1
Control lever
 position degrees: 16...24
Testing:
         rpm : 100
Speed
Minimum rack trave: 9.10
Speed rpm: 300
Rack travel in mm : 7.60...7.80
CONSTANT REGULATION
       rpm : 300...480
Speed
START CUT-OUT
           1/min : 220 (240)
Speed
FUEL DELIVERY CHARACTERISTICS
1st version
          rpm : 600
Speed
Del.quantity cm3/: 131.0...137.0
1000 s: (128.0...140.0)
BREAKAWAY
1st version
1mm rack travel less than
 full load rack tr: 11.40
Speed rpm : 1110...1120
STARTING FUEL DELIVERY
           rpm : 100
Speed
Del.quantity cm3/: 170.0...200.0
           1000 s: (166.0...204.0)
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Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.50...3.60 Prestroke mm : (3.45...3.65) Rack travel in mm : 9.00...12.00 Note remarks : 1- 8- 4- 2- 7- 3-Firing order 6- 5 Test sheet : RVI 14,9 H : 15.01.88 Edition : 10.8.87 Replaces Test oil : ISO-4113 Phasing : 0-45-90-135-180-225-270-315 Combination no. : 0 402 048 705 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PES8P120A320RS3199 BASIC SETTING EP type number : 0 412 028 705 rpm: 1050 Governor 1st speed Governor design. : RQV275...1050PA665 Rack travel in mm : 11.40...11.50 Governer no. : 0 421 813 370 Del.quantity cm3/: 20.2...20.4 Customer-spec. information : RVI Customer 100 s: (19.9...20.7) Engine : MIVRO83530 Spread cm3 : 0.5 1st version kW : 320.0 : 2100 100 s: (0.9) Rated speed rpm : 275.0 TEST BENCH REQUIREMENTS 2nd speed Rack travel in mm: 4.1...4.3 Del.quantity cm3/: 1.7...2.3 Test oil inlet temp. OC : 38...42 100 s: (1.4...2.6) cm3 : 0.8Spread Overflow valve 100 s: (1.2) : 1 417 413 025 (B) Setting of injection pump Inlet press., bar: 1.50 with governor Test nozzie holder GUIDE SLEEVE TRAVEL : 1 688 901 019 1st speed rpm : 275 assembly : 1.40...1.60 travel mm 2nd speed rpm : 450 travel mm : 3.40 Opening : 207...210 : 3.40...3.80 pressure, bar 3rd speed rpm : 800 Orifice plate travel mm : 5.60...6.00 diameter mm : 0,8 4th speed rpm : 1050 : 7.50...7.70 travel mm Test lines : 1 680 750 067 GUIDE SLEEVE POSITION Control-lever position Outside diameter Degree: -1 Speed rpm : 1140 Rack travel in mm : 15.20...17.80 x Wall thickness : 6.00x1.50x1000 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. 1st version rpm : 1050 per values ____ Speed Aneroid pressure h: 700 Del.quantity : 202.0...204.0 1000 : (199.0...207.0) BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Spread cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 62...70 Testing: 1st rack travel in: 10.40 Speed rpm : 1115...1125 2nd rack travel in: 4.00 Speed rpm : 1215...1245 4th rack travel in: 1350 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 7...15 Testing: rpm : 200 Speed Minimum rack trave: 5.60 Speed rpm : 275 Rack travel in mm : 3.80...4.00 CONSTANT REGULATION Speed rpm : 280...405 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Rack travel in mm: 700 Contr.-rod trav.mm: 11.40...11.50 Measurement Speed 1/min : 500 1st pressure hPa : -Rack travel in m: 8.70...8.90 2nd pressure hPa : 420 Rack travel in m: 10.60...10.70 3rd pressure hPa : 360 Rack travel in m: 9.40...9.60 START CUT-OUT 1/min : 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 650 Speed **B10**

Del.quantity cm3/: 188.0...196.0 1000 s: (185.0...199.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 110.0...112.0 1000 s: (107.0...115.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.40 rpm : 1115...1125

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 160.0...190.0

1000 s: (156.0...194.0)

LOW IDLE

Speed rpm : 275

Rack travel in mm : 3.80...4.00

Remarks:

Start-of-delivery mark 130 cam angle after start of delivery cyl. 1.

: 4.30...4.40 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (4.25...4.45) Rack travel in mm : 9.00...12.00 Note remarks : 6-2-4-1-5-3 Firing order : MB 11.7 E 1 : 07.01.88 Test sheet Edition : 2.11.87 Replaces : ISO-4113 : 0-60-120-180-240-300 Test oil Phasing Combination no. : 0 402 076 724 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 6 Pump designation : PES6P110A820LS3131-1 EP type number : 0 412 016 717 BASIC SETTING Governor rpm : 700 Governor design. : RSV350...750P0A536 1st speed Governer no. : 0 421 833 279 Rack travel in mm : 12.70...12.80 Customer-spec. information Del.quantity cm3/: 14.5...14.7 : DAIMLER-BENZ Customer Engine : 0M447 100 s: (14.2...14.9) cm3 : 0.41st version kW : 129.0 Spread Rated speed : 1500 100 s: (0.8) TEST BENCH REQUIREMENTS rpm : 350.0 2nd speed Rack travel in mm: 6.9...7.1 Test oil inlet temp. °C : 38...42 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) cm3 : 0.4 Overflow valve Spread : 1 417 413 025 100 s: (0.7) GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Overflow Degree: -3 quantity min. 1/h: 100...120 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Test nozzle holder : 0 681 343 009 Governor spring pre-tension assembly Click setting x :? Opening FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 172...175 1st version rpm : 700 Test lines : 1 680 750 015 Speed : 145.0...147.0 Del.quantity 1000 : (142.5...149.5) Outside diameter : 4.00 x Wall thickness Spread cm3 : 6.00x1.50x600 x Length mm 1000 : (8.00)(A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values ____ Control lever position degrees: 24...32 BEGINNING OF DELIVERY Testing: Test pressure, bar: 25...27

1st rack travel in: 11.70

rpm : 750...755 Speed 2nd rack travel in: 4.00 Speed rpm: 775...788 4th rack travel in: 900 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 13...21 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm: 7.0 Testing: Speed rpm : 100 Minimum rack trave: 18.00 Speed rpm : 350 Rack travel in mm : 6.90...7.10 Rack travel in mm : 2.00 rpm : 360...400 Speed SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 600 Speed BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.20 rpm : 740...750 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

APPLICATION Generator

Observe VDT-I-420/120

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 22,0 A : 19.02.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 640 810

Injection pump

Pump designation: PE12P120A320LS7814

EP type number : 0 412 620 813

Governor

Governor design. : RQV350...1050PA870-1

: 0 421 813 680 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM 444 LA

1st version kW : 611.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Over flow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 €80 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.80...4.90 Prestroke mm

: (4.75...4.95)

Rack travel in mm: 19.00...21.00 Firing order: 12-1-5-9-8-3-4-11-10-2-6-7

: 0-45-60-105-120-165-Phasing

180-225-240-285-300-

345

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

rpm : 650 1st speed

Rack travel in mm: 12.50...12.70

Del.quantity cm3/: 24.5...24.7

100 s: (24.2...25.0)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 350.0 2nd speed Rack travel in mm: 4.4...4.8

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.90...2.10

rpm : 700 2nd speed

: 4.10...4.50 travel mm

rpm : 1100 3rd speed

travel mm : 7.60...8.00

4th speed rpm : 1200

: 9.50...9.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version 3rd pressure hPa : 1550 rpm : 650 Speed Aneroid pressure h: 1100 Del.quantity : 245.0...250.0)

1000 : (242.0...250.0)

Spread cm3 : 5.00

1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 64...72 Testing: 1st rack travel in: 12.20 Speed rpm : 1090...1100 2nd rack travel in: 4.00 rpm : 1170...1200 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 14...22 Testing: Speed : 200 rpm Minimum rack trave: 6.60 Speed rpm: 350 Rack travel in mm : 4.40...4.80 CONSTANT REGULATION rpm : 350...600 Speed TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 1030 Rack travel in m: 13.10...13.30 : 900 2nd speed rpm Rack travel in m: 13.30...13.50 Aneroid/Altitude Compensator Test 1st version Setting rpm : 600 Speed Rack travel in mm: 1100 Contr.-rod trav.mm: 12.50...12.70 Measurement Speed 1/min: 600 1st pressure hPa : 400 Rack travel in m: 8.60...8.80

Rack travel in m: 12.80...13.00 4th pressure hPa : -Rack travel in m: 7.30...7.50 START CUT-OUT 1/min : 270 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1800 Speed rpm_ : 1050 Del.quantity cm3/: 268.0...272.0 1000 s: (265.0...275.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1800 Speed : 800 rpm Del.quantity cm3/: 270.0...273.0 1000 s: (267.0...276.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 800 : 1050 Speed rpm Del.quantity cm3/: 174.0...176.0 1000 s: (171.0...179.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 121.0...123.0 1000 s: (118.0...126.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.20 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Remarks:

2nd pressure hPa : 670

Rack travel in m: 11.50...11.70

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 T 2 Edition : 19.02.88 : 27.3.87

Replaces Test oil : ISO-4113

Combination no. : 0 402 646 843

Injection pump

Pump designation : PE6P120A320LS7808

EP type number : 0 412 626 816

Governor

Governor design. : RQV300...1050PA797-2

Governer no. : 0 421 813 614

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M441 LA Engine

1st version kW : 240.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 €80 750 067 Test lines

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm: 20.00...21.00

: 6- 3- 5- 2- 4- 1 Firing order

: 0-60-120-180-240-300 Phasing

-360

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 13.80...14.00

Del.quantity cm3/: 20.9...21.1

100 s: (20.6...21.4)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 5.5...5.8

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.20...1.40 travel mm

2nd speed rpm : 600

: 4.90...5.10 travel mm

3rd speed rpm: 1075

: 7.40...7.60 travel mm

4th speed rpm : 1100

: 8.00...8.40 travel mm

5th speed rpm : 1150

: 9.00...9.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 600

Speed

Rack travel in mm : 15.80...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

3rd pressure hPa : 975 1st version Rack travel in m: 13.90...14.00 rpm : 600 Speed Aneroid pressure h: 800 4th pressure hPa : 1100 Del.quantity : 209.0...214.0)

1000 : (206.0...214.0)

Spread cm3 : 5.00

1000 : (9.00) Rack travel in m: 14.40...14.60 5th pressure hPa : -Rack travel in m: 8.80...9.00 START CUT-OUT RATED SPEED 1/min : 220 (240) Speed 1st version FUEL DELIVERY CHARACTERISTICS Control lever position degrees: 36...44 Testing: 1st version 1st rack travel in: 13.60 Aneroid pressure h: 1300 rpm : 1050 Speed rpm : 1095...1110 Speed Del.quantity cm3/: 231.0...234.0 2nd rack travel in: 4.00 rpm : 1170...1200 1000 s: (228.0...237.0) Speed cm3 : 8.00 4th rack travel in: 1300 Spread rpm : 0.00...1.50 1000 s: (12.0) Speed Aneroid pressure h: 1300 LOW IDLE 1 : 800 Speed rpm Del.quantity cm3/: 238.0...242.0 Control lever 1000 s: (235.0...245.0) position degrees: 8...16 cm3 : 8.00 Spread 1000 s: (12.0) Testing: Speed rpm : 100 Aneroid pressure h: -Minimum rack trave: 7.00 rpm : 500 Speed Del.quantity cm3/: 133.0...135.0 Speed rpm : 300 Rack travel in mm : 5.50...5.80 1000 s: (130.0...138.0) cm3 : 8.00 Spread CONSTANT REGULATION 1000 s: (12.0) rpm : 300...450 Speed TORQUE CONTROL BREAKAWAY Dimension a mm : 0.30 2nd speed rpm : 1050 1st version Rack travel in m: 14.60...14.80 3rd speed rpm : 800 1mm rack travel less than Rack travel in m: 15.90...15.10 full load rack tr: 13.60 4th speed rpm : 700 rpm : 1095...1110 Speed STARTING FUEL DELIVERY Aneroid/Altitude Compensator Test Speed rpm : 100 Del.quantity cm3/ : 190.0...210.0 1st version Setting 1000 s: (186.0...214.0) rpm : 60C Speed Rack travel in n.m : 800 Remarks: Contr.-rod trav.mm: 13.80...14.00 Measurement Speed 1/min: 600 1st pressure hPa : 300 Rack travel in m: 10.70...10.90 2nd pressure hPa : 550 Rack travel in m: 12.60...12.80

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks Test sheet : SCA 11,1 C Phasing : 0-60-120-180-240-300 : 05.02.88 Edition : 2.11.87 Tolerance + - 0 Replaces : 0.50 (0.75) : ISO-4113 Test oil Time to cyl. no. : 1 : 0 402 646 845 Combination no. BASIC SETTING Injection pump Pump designation : PE6P12OA72ORS7139 rpm : 700 1st speed EP type number : 0 412 626 819 Rack travel in mm : 15.20...15.30 Governor Governor design.: RQV200...1000PA725-2 : 0 421 813 632 Del.quantity cm3/: 23.6...23.8 Governer no. Customer-spec. information 100 s: (23.3...24.1) Customer : SAAB-SCANIA Spread cm3 : 0.6Engine : DSC11 13 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 225.0 2nd speed Rack travel in mm: 5.5...5.7 Test oil inlet temp. °C Del.quantity cm3/: 1.8...2.2 : 38...42 100 s: (1.5...2.5) cm3 : 0.3Overflow valve Spread : 1 417 413 025 100 s: (0.6) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 019 assembly GUIDE SLEEVE TRAVEL rpm : 225 1st speed : 1.20...1.60 travel mm Opening rpm : 350 : 207...210 pressure, bar 2nd speed : 2.40...3.00 travel mm Orifice plate 3rd speed rpm : 650 diameter mm travel mm : 4.50...5.10 : 0,8 4th speed rpm: 1045 : 8.40...8.60 travel mm rpm : 1170 : 1 680 750 015 Test lines 5th speed : 10.10...10.50 travel mm Outside diameter GUIDE SLEEVE POSITION x Wall thickness : 6.00x1.50x600 Control-lever position x Length mm Degree: -1 rpm : 1040 (A) Injection pump setting values Speed Rack travel in mm : 15.20...17.80 Insp. values in parentheses Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values ____ BEGINNING OF DELIVERY 1st version Test pressure, bar: 25...27 Speed rpm : 700 Aneroid pressure h: 900 Del.quantity : 236.0...238.0 1000 : (233.0...241.0) Prestroke mm : 5.00...5.10 : (4.95...5.15) Rack travel in mm : 9.00...12.00

Spread cm3: 6.00 1000 : (9.00)

1st version Control lever

RATED SPEED

position degrees: 59...67

Testing:

1st račk travel in: 14.20

rpm : 1040...1050 Speed 2nd rack travel in: 4.00

Speed rpm : 1165...1195 4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

Speed rpm : 100 Minimum rack trave: 7.00

rpm : 225

Rack travel in mm : 5.50...5.70

Rack travel in mm : 2.00

Speed rpm : 410...470

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Rack travel in mm: 900

Contr.-rod trav.mm: 15.20...15.30

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 12.40...12.50

2nd pressure hPa : 535

Rack travel in m: 14.60...14.70

3rd pressure hPa : 290

Rack travel in m: 13.10...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 1000 Del.quantity cm3/ : 226.0...234.0

1000 s: (224.0...236.0)

Aneroid pressure h: -

: 500 Speed rpm

Del.quantity cm3/: 169.0...173.0

1000 s: (167.0...175.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.20

Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 240.0...290.0 Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 225 Speed

Rack travel in mm : 5.50...5.70 Del.quantity cm3/ : 18.0...22.0

1000 s: (15.0...25.0) cm3 : 3.00

Spread 1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see

VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania on August 20, 1987.
Start of delivery - engine: 15° before TDC
Firing sequence of engine: 1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : PEN 16,2 B Edition : 12.02.88 Replaces : 20.11.87 Test oil : ISO-4113 Combination no. : 0 402 646 857 Injection pump Pump designation : PE6P130A720RS7150 EP type number : 0 412 636 808 Governor Governor design. : RQV250...900PA881 : 0 421 813 676 Governer no. Customer-spec. information Customer : VOLVO-PENTA Engine : TAMD 162 (HD) TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00X1.50X1000 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

: 0-60-120-180-240-300 Phasing Tolerance + - D : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 700 Rack travel in mm : 10.20...10.30 Del.quantity cm3/: 29.2...29.4 100 s: (28.8...29.8) cm3 : 0.5 Spread 100 s: (0.9) 2nd speed rpm : 250.0 Rack travel in mm : 3.7...3.9 Del.quantity cm3/ : 1.7...2.2 100 s: (1.4...2.4) cm3 : 0.5Spread 100 s: (0.7) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 250 1st speed travel mm : 0.90...1.30 rpm : 350 2nd speed travel mm : 2.00...2.60 rpm : 700 3rd speed : 4.40...5.00 travel mm rpm : 925 4th speed : 7.30...7.50 travel mm : 985 5th speed rpm : 8.10...8.50 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 980 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 700 Aneroid pressure h: 900 Del.quantity : 292.0...294.0 1000 : (288.0...298.0)

Firing order

: 1-5-3-6-2-4

per values ____

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 3.60...3.70

: (3.55...3.75)

BEGINNING OF DELIVERY

Prestroke mm

Spread

cm3: 5.00 1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 55...63

Testing:

1st rack travel in: 9.20

rpm : 920...925 Speed

2nd rack travel in: 4.00

Speed rpm : 970...1000 4th rack travel in: 1100 Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

Speed rpm : 100

Minimum rack trave: 5.30 Speed rpm : 250 Rack travel in mm : 3.70...3.90

CONSTANT REGULATION

rpm : 250. . . 360 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed

Rack travel in mm: 900

Contr.-rod trav.mm: 10.20...10.30

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 7.60...7.80

2nd pressure hPa : 335

Rack travel in m: 7.80...8.00

3rd pressure hPa : 665

Rack travel in m: 9.80...10.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 700 Speed

Del.quantity cm3/: 192.5...195.5 1000 s: (189.0...199.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

rpm : 920...925 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

LOW IDLE

Speed rpm : 250 Rack travel in mm : 3.70...3.90

Del.quantity cm3/: 17.0...22.0

1000 s: (14.5...24.5)

cm3 : 5.00 Spread

1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring

preload on new delivery-valve holders to 2.9...3.1 mm.

Firing order : 1-2-7-3-4-5-6-8 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : 0-45-90-135-180-225-: SCA 14,2 D Phasing Edition : 24.2.88 270-315 Tolerance + - 0 : 26.8.87 : 0,50(0,75) Replaces Test oil : ISO-4113 BEGINNING OF DELIVERY DIFFERENCE Combination no. : 0 402 648 807 betw. rack trav. m: 7.00...13.90 & maximum rack tra: 21.00 Injection pump Difference ° CS : 1.45...2.15 Pump designation : PE8P120A920/4LS7008 EP type number : 0 412 628 803 BASIC SETTING Governor Governor design. : RQV200...950PAS47-1 : 0 421 813 360 rpm: 700 Governer no. 1st speed Customer-spec. information Rack travel in mm : 13.90...14.00 Customer : SAAB-SCANIA Del.quantity cm3/: 19.7...19.9 Engine : DSC14 01 100 s: (19.4...20.2) TEST BENCH REQUIREMENTS cm3 : 0.7Spread Test oil inlet temp. °C : 38...42 100 s: (1,0) rpm : 225 Overflow valve 2nd speed : 1 417 413 025 Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 1.4...1.8 100 s: (-) Inlet press., bar : 1.50 cm3 : 0,3 Spread 100 s: (0,6) Test nozzle holder : 1 688 901 019 assembly (B) Setting of injection pump with governor Opening : 207...210 pressure, bar GUIDE SLEEVE TRAVEL Orifice plate 1st speed rpm : 225 : 1..30...1.50 : 0,8 diameter mm travel mm rpm : 270 2nd speed : 1.90...2.10 travel mm rpm : 360 Test lines : 1 680 750 015 3rd speed : 2.60...3.00 travel mm Outside diameter rpm : 990 4th speed : 7.80...8.00 x Wall thickness travel mm rpm : 1120 : 6,00x1,50x600 5th speed x Length mm : 9.40...9.60 travel mm (A) Injection pump setting values Insp. values in parentheses GUIDE SLEEVE POSITION Control-lever position Set equal delivery quant. per values Degree: -1 rpm : 1040 Speed Rack travel in mm : 15.20...17.80 BEGINNING OF DELIVERY Test pressure, bar: 25...27

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 700

B22

Prestroke mm

: 4.50...4.60

Rack travel in mm : 6.00...8.00

: (4.45...4.65)

Aneroid pressure h: 900 Aneroid pressure h: -Del.quantity : 197.0...199.0 rpm : 500 Speed Del.quantity cm3/: 146.0...150.0 1000 : (194.0...202.0) cm3 : 7.0 1000 s: (144.0...152.0) Spread 1000 : (10.0) RATED SPEED BREAKAWAY 1st version 1st version 1mm rack travel less than Control lever position degrees: 56...64 full load rack tr: 12.90 Testing: Speed rpm : 990...1000 1st rack travel in: 12.90 rpm : 990...1000 Speed STARTING FUEL DELIVERY 2nd rack travel in: 4.00 Speed rpm : 1110...1140 4th rack travel in: 1250 Speed rpm : 100 Del.quantity cm3/: 240.0...290.0 Speed rpm : 0.00...1.00 1000 s: (-) Rack travel in mm : 20.00...21.00 LOW IDLE 1 Control lever LOW IDLE position degrees: 6...14 Testing: Speed rpm : 225
Rack travel in mm : 4.70...4.90 rpm : 100 Speed Del.quantity cm3/: 14.0...18.0 Minimum rack trave: 6.20 Speed rpm : 225 1000 s: (-) Rack travel in mm : 4.70...4.90 Spread cm3 : 3.0Rack travel in mm: 2.00 1000 s: (6.0) rpm : 330...390 Speed Remarks: Aneroid/Altitude Delivery-valve spring pre-tension Compensator Test 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring 1st version preload on new delivery-valve holders Setting to 2.9...3.1 mm. rpm : 500 Speed Rack travel in mm: 900 Contr.-rod trav.mm: 13,90...14.00 Measurement Speed 1/min: 500 ADDITIONAL INFORMATION 1st pressure hPa : -Rack travel in m: 11.00...11.10 2nd pressure hPa : 335 Rack travel in m: 13.10...13.20 3rd pressure hPa : 215 Check and set without ROBO diaphragam Rack travel in m: 11.60...11.80 FUEL DELIVERY CHARACTERISTICS For comb. With letter index see VDT-I-400/116. 1st version Aneroid pressure h: 900 Speed rpm : 950 Del.quantity cm3/ : 190.0...198.0 1000 s: (188.0...200.0) For sealing see VDT-I-400/117.

Test specifications approved by Scania on 1986-06-09 Engine firing sequence: 1-5-4-2-6-3-7-8

Start of delivery - engine: 22° before TDC at control-rod travel = 6.0... 8.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1- 2- 7- 3- 4- 5-Firing order 6-8 Note remarks Test sheet : SCA 14,2 D2 : 12.02.88 : 0-45-90-135-180-225-Edition Phasing : 9.10.87 270-315 Replaces Tolerance + - 0 Test oil : ISO-4113 : 0.50 (0.75) Combination no. : 0 402 648 815 Time to cyl. no. : 1 BEGINNING OF DELIVERY DIFFERENCE Injection pump Pump designation : PE8P120A920/4LS7008X EP type number : 0 412 628 812 betw. rack trav. m: 7.00...12.80 & maximum rack tra: 21.00 Governor Governor design. : RQV200...950PA547-6 Difference OCS : 1.05...1.75 : 0 421 813 499 Governer no. BASIC SETTING Customer-spec. information Customer : SAAB-SCANIA 1st speed rpm : 700 Rack travel in mm : 12.80...12.90 Engine : DSC14 02 TEST BENCH REQUIREMENTS Del.quantity cm3/: 18.3...18.5 100 s: (18.0...18.8) Test oil inlet temp. OC : 38...42 cm3 : 0.7Spread Overflow valve : 1 417 413 025 100 s: (1.0) rpm : 225.0 Inlet press., bar: 1.50 2nd speed Rack travel in mm : 4.7...4.9 Del.quantity cm3/ : 1.4...1.8 Test nozzle holder : 1 688 901 019 100 s: (-) assembly cm3 : 0.3Spread 100 s: (0.6) Opening : 207...210 pressure, bar (B) Setting of injection pump Orifice plate with governor diameter mm : 0,8 GUIDE SLEEVE TRAVEL rpm : 225 1st speed : 1.30...1.40 Test lines : 1 680 750 015 travel mm rpm : 260 2nd speed Outside diameter travel mm : 1.70...1.90 x Wall thickness 3rd speed rpm : 360 : 6.00x1.50x600 travel mm : 2.60...3.00 x Length mm rpm : 1000 4th speed : 7.90...9.00 (A) Injection pump setting values travel mm rpm : 1110 Insp. values in parentheses 5th speed : 9.30...9.50 Set equal delivery quant. travel mm per values ____ GUIDE SLEEVE POSITION BEGINNING OF DELIVERY Control-lever position Degree: -1 Test pressure, bar: 25...27 rpm : 1040 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

B25

Prestroke mm

: 4.50...4.60

Rack travel in mm : 6.00...8.00

: (4.45...4.65)

1st version

rpm : 700 Speed

Aneroid pressure h: 900 Del.quantity

: 183.0...185.0 1000 : (180.0...188.0)

: 7.00 cm3 Spread 1000 : (10.00)

RATED SPEED

1st version Control lever

position degrees: 55...63

Testing:

1st rack travel in: 11.80 rpm : 990...1000 Speed

2nd rack travel in: 4.00

rpm : 1090...1120 Speed

4th rack travel in: 1250 Speed rpm: 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 6...14

Testing:

Speed : 100 Lbw Minimum rack trave: 6.20 Speed rpm : 225 Rack travel in mm : 4.70...4.90

Rack travel in mm : 2.00

Speed Lbw : 330...390

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 500 Speed Rack travel in mm: 900

Contra-rod trav.mm: 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 11.00...11.10

3rd pressure hPa : 215

Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm : 950 Speed

Del.quantity cm3/: 177.0...185.0

1000 s: (175.0...187.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 146.0...150.0

1000 s: (144.0...152.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

rpm : 990...1000 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 240.0...290.0 1000 s: (-) Rack travel in mm: 20.00...21.00

LOW IDLE

rpm : 225 Speed

Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 14.0...18.0 1000 s: (-) Spread cm3 : 3.00

1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see

VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over on May 3, 1985
Start of delivery - engine: 22° before TDC at control-rod travel = 6.0...
8.0 mm

Engine firing sequence: 1-5-4-2-6-3-7-8

1- 2- 7- 3- 4- 5-6- 8 BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order Note remarks Test sheet : SCA 14,0 H : 29.01.88 Edition Phasing : 0-45-90-135-180-225-: 9.3.87 270-315 Replaces Tolerance + - 0 : 0.50 (0.75) : ISO-4113 Test oil Combination no. : 0 402 648 826 Time to cyl. no. BASIC SETTING Injection pump : PE&P120A920/4LS7125S Pump designation : 0 412 628 815 rom : 700 EP type number 1st speed Governor Governor design.: RQV200...950PA736-1 Rack travel in mm : 13.30...13.40 : 0 421 813 551 Governer no. Del.quantity cm3/: 20.9...21.1 Customer-spec. information 100 s: (20.6...21.4) Customer : SAAB-SCANIA cm3 : 0.6: DSC14 05 Spread Engine TEST BENCH REQUIREMENTS 100 s: (0.9) rpm : 225.0 Test oil 2nd speed inlet temp. °C : 38...42 Rack travel in mm : 5.1...5.3 Del.quantity cm3/: 1.6...2.0 100 s: (-) Overflow valve : 1 417 413 025 cm3 : 0.3Spread 100 s: (0.6) Inlet press., bar: 1.50 (B) Setting of injection pump Test nozzle holder with governor : 1 688 901 019 assembly GUIDE SLEEVE TRAVEL rpm : 225 1st speed Opening : 1.30...1.40 : 207...210 trave! mm pressure, bar rpm : 330 2nd speed Orifice plate travel mm : 2.40...2.70 rpm : 420 diameter mm : 0,8 3rd speed : 3.10...3.40 travel mm 4th speed rpm : 1000 : 1 680 750 015 : 7.90...8.10 Test lines travel mm 5th speed rpm : 1120 travel mm : 9.40...9.60 Outside diameter x Wall thickness : 6.00x1.50x600 GUIDE SLEEVE POSITION x Length mm Control-lever position Degree: -1 (A) Injection pump setting values rpm : 1040 Speed Insp. values in parentheses Set equal delivery quant. Rack travel in mm : 15.20...17.80 per values FULL LOAD DELIV. AT FULL LOAD STOP BEGINNING OF DELIVERY Test pressure, bar: 25...27 1st version Speed rpm : 700 : 5.00...5.10 Aneroid pressure h: 900 Prestroke mm : (4.95...5.15) Del.quantity : 209.0...211.0 1000 : (206.0...214.0) Rack travel in mm : 9.00...12.00

: 6.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 56...64

Testing:

1st rack travel in: 12.30 Speed rpm : 990...1000

2nd rack travel in: 4.00

Speed rpm : 1100...1130

4th rack travel in: 1250 Speed rpm: 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 6...14

Testing:

Speed rpm : 100

Minimum rack trave: 6.40

Speed rpm : 225
Rack travel in mm : 4.90...5.10

Rack travel in mm : 2.00

rpm : 340...400 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Rack travel in mm: 900

Contr.-rod trav.mm: 13.30...13.40

Measurement

1/min : 500 ° Speed

1st pressure hPa : -

Rack travel in m: 11.20...11.30

2nd pressure hPa : 365

Rack travel in m: 12.80...12.90

3rd pressure hPa : 215

Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 : 950 Speed rpm

Del.quantity cm3/: 199.0...207.0 1000 s: (197.0...209.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 158.0...162.0

1000 s: (156.0...164.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.30

rpm : 990...1000 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 240.0...290.0 1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225

Rack travel in mm : 4.90...5.10

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see

VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania

on August 20, 1987.

Start of delivery - engine: 16° before TDC Engine firing sequence: 1-5-4-2-6-3-7-8

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 A 7 : 26.02.88 Edition : 26.6.87 Replaces Test oil : ISO-4113

Combination no. : 0 402 648 834

Injection pump

Pump designation : PE8P120A320LS7801-1

EP type number : 0 412 628 818

Governor

Governor design. : RQV350..900PA866-1

: 0 421 813 629 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M442 A Engine

1st version kW : 267.0 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Over flow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 : 8- 7- 2- 6- 3- 5-

Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 880

Rack travel in mm : 13.80...13.90

Del.quantity cm3/: 20.3...20.5

100 s: (20.0...20.8)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 350.0 2nd speed Rack travel in mm: 5.8...6.1 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6

Spread

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

travel mm : 1.20...1.40

2nd speed rpm : 425

travel mm : 2.40...2.60

3rd speed rpm : 550

: 3.30...3.70 travel mm

4th speed rpm : 900

: 8.20...8.60 travel mm

5th speed rpm : 975

: 9.70...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 930 Speed

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 880 Speed Aneroid pressure h: 900 Del.quantity : 203.0...205.0 1000 : (200.0...208.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 61...69 Testing: 1st rack travel in: 12.80 rpm : 920...930 Speed 2nd rack travel in: 4.00 Speed rpm : 990...1020 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Control lever position degrees: 8...162 Testing: : 100 Speed rpm Minimum rack trave: 7.90 : 350 rpm Rack travel in mm : 5.80...6.10 CONSTANT REGULATION rpm : 300...500 Speed TORQUE CONTROL Dimension a mm : 0,60 Torque control curve - 1st version 1st speed rpm : 880 Rack travel in m: 13.80...13.90 2nd speed rpm : 750 Rack travel in m: 14.40...14.60 : 825 3rd speed rpm Rack travel in m: 14.00...14.20 Aneroid/Altitude Compensator Test 1st version Setting rpm : 600 Speed

Rack travel in m: 12.20...12.40 2nd pressure hPa : 550 Rack travel in m: 13.80...14.00 START CUT-OUT Speed 1/min : 270 (290) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 rpm : 700 Speed Del.quantity cm3/: 212.0...216.0 1000 s: (209.0...219.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: rpm_ : 500 Speed Del.quantity cm3/: 143.0...145.0 1000 s: (140.0...148.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.80 rpm : 920...930 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 180.0...200.0 1000 s: (176.0...204.0) Remarks:

Measurement

Speed

Rack travel in mm : -

1st pressure hPa : 350

Contr.-rod trav.mm: 11.20...11.50

1/min : 600

: 1- 2- 7- 3- 4- 5-BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order 6-8 Note remarks Test sheet : SCA 14,0 H1 Edition : 15.01.88 : 0-45-90-135-180-225-Phasing : 2.11.87 270-315 Replaces Tolerance + - 0 : 0.50 (0.75) Test oil : ISO-4113 Combination no. : 0 402 648 836 Time to cyl. no. : 1 BASIC SETTING Injection pump Pump designation : PE8P120A920/4LS7125T EP type number : 0 412 628 824 1st speed rpm: 700 Governor Governor design.: RQV200...950PA736-4 Rack travel in mm : 13.80...13.90 : 0 421 813 646 Governer no. Del.quantity cm3/: 22.1...22.3 Customer-spec. information Customer : SAAB-SCANIA 100 s: (21.8...22.6) : DSC14 03 L09_L10 Spread cm3 : 0.6Engine TEST BENCH REQUIREMENTS 100 s: (0.9) Test oil 2nd speed rpm : 225.0 inlet temp. OC : 38...42 Rack travel in mm : 4.9...5.1 Del.quantity cm3/: 1.6...2.0 Overflow valve 100 s: (-) : 1 417 413 025 cm3 : 0.3Spread 100 s: (0.6) Inlet press., bar : 1.50 (B) Setting of injection pump Test nozzle holder with governor : 1 688 901 019 assembly GUIDE SLEEVE TRAVEL rpm : 225 1st speed Opening : 1.10...1.50 : 207...210 pressure, har travel mm rpm : 350 2nd speed : 2.30...2.90 Orifice plate travel mm diameter mm rpm : 650 : 0,8 3rd speed : 4.30...4.90 travel mm 4th speed rpm : 995 : 7.50...7.70 : 1 680 750 015 Test lines travel mm 5th speed rpm : 1125 : 9.00...9.40 Outside diameter travel mm x Wall thickness : 6.00X1.50X600 GUIDE SLEEVE POSITION x Length mm Control-lever position (A) Injection pump setting values Degree: -1 Speed rpm : 1070 Rack travel in mm : 15.20...17.80 Insp. values in parentheses Set equal delivery quant. per values FULL LOAD DELIV. AT FULL LOAD STOP BEGINNING OF DELIVERY Test pressure, bar: 25...27 1st version Speed rpm : 700 Prestroke mm : 5.00...5.10 Aneroid pressure h: 900 Del.quantity : 221.0...223.0 1000 : (218.0...226.0) : (4.95...5.15) Rack travel in mm : 9.00...12.00

Spread cm3 : 6.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 57...65

Testing:

1st rack travel in: 12.80 rpm : 990...1000 Speed

2nd rack travel in: 4.00

rpm : 1115...1145 Speed

4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 6...14

Testing:

Speed rpm : 100 Minimum rack trave: 6.40

rpm : 225 Speed

Rack travel in mm : 4.90...5.10

Rack travel in mm : 2.00

rpm : 340...400 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Rack travel in mm: 900

Contr.-rod trav.mm: 13.80...13.90

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.70...10.80

2nd pressure hPa : 445

Rack travel in m: 12.90...13.00

3rd pressure hPa : 325

Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 : 950 Speed rpm

Del.quantity cm3/: 211.0...219.0

1000 s: (209.0,...221.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 138.0...142.0

1000 s: (136.0...144.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80

rpm : 990...1000 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 240.0...290.0 1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225

Rack travel in mm : 4.90...5.10

Del.quantity cm3/: 16.0...20.0 Spread cm3: 3.00

1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm Because of flattening, set the spring

preload on new delivery-valve holders to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. With letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania on August 20, 1987.
Start of delivery - engine: 16° before TDC
Engine firing sequence: 1-5-4-2-6-3-7-8

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1- 2- 7- 3- 4- 5-Firing order 6-8 Note remarks Test sheet : SCA 14,0 H2 : 29.01.88 : 0-45-90-135-180-225-Edition Phasing 270-315 Replaces Tolerance + - 0 : 0.50 (0.75) Test oil : ISO-4113 Combination no. : 0 402 648 839 Time to cyl. no. : 1 BASIC SETTING Injection pump Pump designation: PE8P120A920/4L87125T EP type number : 0 412 628 824 1st speed rpm : 700 Governor Governor design. : RQV200...950PA736-1 Rack travel in mm: 13.80...13.90 : 0 421 813 551 Governer no. Del.quantity cm3/: 22.1...22.3 Customer-spec. information : SAAB-SCANIA 100 s: (21.8...22.6) Customer : DSC14 03 cm3 : 0.6Engine Spread TEST BENCH REQUIREMENTS 100 s: (0.9) 2nd speed rpm : 225.0 Rack travel in mm : 5.3...5.5 Test oil inlet temp. OC : 38...42 Del.quantity cm3/: 1.6...2.0 Overflow valve 100 s: (-) : 1 417 413 025 cm3 : 0.3Spread 100 s: (0.6) Inlet press., bar: 1.50 (B) Setting of injection pump Test nozzle holder with governor : 1 688 901 019 assembly GUIDE SLEEVE TRAVEL rpm : 225 Opening 1st speed : 207...210 : 1.10...1.50 pressure, bar travel mm rpm : 350 2nd speed : 2.30...2.90 Orifice plate travel mm 3rd speed rpm : 650 diameter mm : 0,8 : 4.30...4.90 travel mm 4th speed rpm : 995 Test lines : 1 680 750 015 : 7.50...7.70 travel mm 5th speed rpm: 1125 : 9.00...9.40 Outside diameter travel mm x Wall thickness : 6.00x1.50x600 GUIDE SLEEVE POSITION x Length mm Control-lever position (A) Injection pump setting values Degree: -1 Insp. values in parentheses rpm : 1070 Speed Rack travel in mm : 15.20...17.80 Set equal delivery quant. per values FULL LOAD DELIV. AT FULL LOAD STOP BEGINNING OF DELIVERY Test pressure, bar: 25...27 1st version rpm : 700 Speed : 5.00...5.10 Aneroid pressure h: 900 Prestroke mm

Del.quantity : 221.0...226.0)

: (4.95...5.15)

Rack travel in mm : 9.00...12.00

Del.quantity cm3/: 158.0...162.0 Spread cm3 : 6.00 1000 s: (156.0...164.0) 1000 : (9.00) RATED SPEED BREAKAWAY 1st version 1st version Control lever 1mm rack travel less than position degrees: 57...65 full load rack tr: 12.80 Testing: 1st rack travel in: 12.80 rpm : 990...1000 Speed rpm : 990...1000 Speed 2nd rack travel in: 4.00 STARTING FUEL DELIVERY Speed rpm : 1115...1145 4th rack travel in: 1250 rpm : 0.00...1.00 rpm : 100 Speed Speed Del.quantity cm3/: 240.0...290.0 LOW IDLE 1 1000 s: (-) Control lever Rack travel in mm : 20.00...21.00 position degrees: 6...14 LOW IDLE Testing: Speed : 100 rpm : 225 rpm Speed Rack travel in mm : 4.90...5.10 Minimum rack trave: 6.40 : 225 Speed rpm Rack travel in mm : 4.90...5.10 Remarks: Rack travel in mm : 2.00 rpm : 340...400 Delivery-valve spring pre-tension Speed 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm Aneroid/Altitude Compensator Test Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm. 1st version Setting Speed rpm : 500 Rack travel in mm: 900 Contr.-rod trav.mm: 13.80...13.90 ADDITIONAL INFORMATION Measurement Speed 1/min: 500 1st pressure hPa : -Check and set without ROBO diaphragam Rack travel in m: 11.20...11.30 2nd pressure hPa : 365 Rack travel in m: 12.80...12.90 3rd pressure hPa : 215 Rack travel in m: 11.90...12.10 For comb. with letter index see VDT-I-400/116. FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 950
Del.quantity cm3/: 211.0...219.0
1000 s: (209.0...221.0)

Aneroid pressure h: -Speed rpm : 500

Test specifications approved by Scania on 1987-12-15

For sealing see VDT-I-400/117.

Start of delivery - engine: 16° before TDC Engine firing sequence: 1-5-4-2-6-3-7-8

BOSCH INJ. PUMP TEST SPECIFICATIONS BEGINNING OF DELIVERY Test pressure, bar: 25...27 Note remarks : 5.20...5.30 Prestroke mm Test sheet : MB 14,7 A 9 : (5.15...5.35) Rack travel in mm : 20.00...21.00 Edition : 11.12.87 : 8- 7- 2- 6- 3- 5-Replaces : 20.11.87 Firing order Test oil : ISO-4113 Combination no. : 0 402 648 842 : 0-45-90-135-180-225-Injection pump Phasing Pump designation : PE8P120A320LS7801-1 270-315 Tolerance + - 0 : 0.50 (0.75) EP type number : 0 412 628 818 Governor Governor design. : RQV350..950PA866-2 Time to cyl. no. : 8 : 0 421 813 673 Governer no. BASIC SETTING Customer-spec. information Customer : DAIMLER-BENZ 1st speed rpm: 930 Rack travel in mm : 15.30...15.40 Engine : 0M442 A 1st version kW : 275.0 Del.quantity cm3/: 21.1...21.3 : 1900 Rated speed 100 s: (20.8...21.6) TEST BENCH REQUIREMENTS Spread cm3 : 0.5Test oil inlet temp. OC : 38...42 100 s: (0.9) rpm : 350.0 Overflow valve 2nd speed : 1 417 413 025 Rack travel in mm : 6.2...6.6 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5) cm3 : 0.6 Inlet press., bar: 1.50 Spread 100 s: (1.0) Overflow quantity min. 1/h: 100...120 (B) Setting of injection pump Test nozzle holder with governor assembly : 1 688 901 019 GUIDE SLEEVE TRAVEL rpm : 300 Opening. 1st speed : 207...210 : 0.60...0.80 pressure, bar travel mm 2nd speed rpm : 425 : 2.40...2.60 travel mm Orifice plate 3rd speed rpm : 800 diameter mm : 0,8 : 5.30...5.60 travel mm 4th speed rpm : 1000 : 1 680 750 067 : 7.80...8.20 Test lines travel mm 5th speed rpm : 1120 : 9.50...10.00

Outside diameter : 9.

x Wall thickness : 6.00x1.50x1000 : GUIDE SLEEVE POSITION : Control-lever position

(A) Injection pump setting values : Degree: -1

Insp. values in parentheses : Speed rpm : ?

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant, per values _____

Rack travel in mm : 16.50...18.00

1st version

Speed rpm: 930 Aneroid pressure h: 950

Del.quantity : 211.0...213.0

1000 : (208.0...216.0) cm3 : 5.00

Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 60...68

Testing:

1st rack travel in: 14.40 Speed rpm : 980...990 2nd rack travel in: 4.00

Speed rpm : 1080...1110

4th rack travel in: 1300

Speed rpm : 0.00...1.50

LOW IDLE 1 Control lever

position degrees: 8...16

Testing:

Speed rpm : 100 Minimum rack trave: 7.90 Speed rpm : 350

Rack travel in mm : 6.20...6.40

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : 0.90

Torque control curve - 1st version

1st speed rpm : 950

Rack travel in m: 15.30...15.40

2nd speed rpm : 800

Rack travel in m: 16.40...16.60

3rd speed rpm : 900

Rack travel in m: 15.90...16.10

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600 Rack travel in mm : -

Contr.-rod trav.mm: 10.90...11.30

Measurement

Speed 1/min: 600

1st pressure hPa : 450

Rack travel in m: 11.70...11.90

2nd pressure hPa : 700

Rack travel in m: 13.80...14.00

START CUT-OUT

Speed 1/min: 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 950 Speed rpm : 800

Del.quantity cm3/: 233.0...237.0

1000 s: (230.0...240.0) cm3 : 8.00

Spread cm3 : 8.00 1000 s: (12.0)

Aneroid pressure h: 950

Speed rpm : 930

Del.quantity cm3/: 167.0...169.0 * 1000 s: (164.0...172.0)

Spread cm3: 8.00

1000 s: (12.0)

Aneroid pressure h: -Speed rpm : 500

Del.quantity cm3/: 143.0...145.0

1000 s: (140.0...148.0)

Spread cm3 : 8.00 1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.40

Speed rpm : 980...990

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 190.0...210.0

1000 s: (186.0...214.0)

Remarks:

:

* = Set at reduced-delivery stop.

: 1- 2- 9- 10- 5- 6-11- 12- 3- 4- 7- 8 BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order Note remarks Test sheet : MWM 21,6 B Edition : 18.12.87 : 0-30-60-90-120-150-Phasing Replaces : 5.6.87 180-210-240-270-300-Test oil : ISO-4113 330 Tolerance + - D : 0.50 (0.75) Combination no. : 0 402 670 803 BASIC SETTING Injection pump Pump designation : PE12P12OA520/5RS7146 1st speed rpm : 800 EP type number : 0 412 620 808 Rack travel in mm : 14.90...15.00 Governor Governor design.: RSUV325...1150P0A358 Governer no. : 0 421 829 105 Del.quantity cm3/: 26.0...26.2 100 s: (25.8...26.6) Customer-spec. information Customer : MwM Spread cm3 : 0.5 : TBD234V12 Engine 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 325.0 2nd speed Rack travel in mm: 6.5...6.7

Del.quantity cm3/: 3.0...4.0

100 s: (2.7...4.3)

Spread cm3: 0.6 Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 100 s: (1.0) rpm : 1100 3nd speed Rack travel in mm : 7.00...7.10 Inlet press., bar: 1.50 Del.quantity cm3/ : 2.0...7.0 * 100 s: (-) Test nozzle holder assembly : 1 688 901 019 GUIDE SLEEVE POSITION Control-lever position Opening : 207...210 pressure, bar Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Orifice plate diameter mm : 0,8 Governor spring pre-tension Click setting x : 4.00 : 1 680 750 067 Test lines RATED SPEED Outside diameter x Wall thickness 1st version x Length mm : 6.00x1.50x1000 Control lever position degrees: 66...74 (A) Injection pump setting values Insp. values in parentheses Testing: Set equal delivery quant. 1st rack travel in: 13.90 Speed rpm : 1190...1200 per values 2nd rack travel in: 4.00

Speed rpm : 1280...1310

rpm : 0.30...1.40

4th rack travel in: 1440

Speed

LOW IDLE 1 Control lever

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35) Rack travel in mm : 9.00...12.00

position degrees: 29...37 Setting point w/out bumper spring

: 325 Speed rpm Rack travel in mm: 6.1 Speed : 325 rpm

Rack travel in mm : 6.50...6.70 Rack travel in mm: 2.00 Speed rpm : 440...500

Aneroid/Altitude Compensator Test

1st version

Setting rpm : 500 Speed Rack travel in mm: -

Contr.-rod trav.mm: 9.40...9.60

Measurement

Speed 1/min : 500 2nd pressure hPa : 725

Rack travel in m: 14.70...14.80

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.90 rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

: 100 Speed Lbw

Del.quantity cm3/: 200.0...240.0 1000 s: (-)

LOW IDLE

Speed rpm : 325 Rack travel in mm : 6.50...6.70

Del.quantity cm3/: 30.0...40.0 1000 s: (27.0...43.0)

cm3 : 6.00 Spread

1000 s: (10.00)

Remarks:

* = Element disconnected at idle for cylinders 2, 4, 6, 8, 10 and 12. Hydraulic latching of starting delivery.

Latching at 0.75 bar...0.85 bar.

Unlatching at 0.35 bar...0.45 bar.

Full-load delivery not known. Set according to engine test report.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MWM 10,8 C : 18.12.87 Edition Replaces : 5.6.87 : ISO-4113 Test oil Combination no. : 0 402 676 804 Injection pump Pump designation : PE6P120A320RS7142 EP type number : 0 412 626 820 Governor Governor design. : RSUV325...1150P0A358 : 0 421 829 105 Governer no. Customer-spec. information Customer : D-TBD 234 V6 Engine TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00x1.50x1000 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 5.20...5.30 Prestroke mm : (2.15...5.35) Rack travel in mm : 9.00...12.00 **C15**

: 0-90-120-210-240-330 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm: 800 Rack travel in mm : 14.90...15.00 Del.quantity cm3/: 26.0...26.2 100 s: (25.7...26.5) cm3 : 0.5Spread 100 s: (0.9) rpm : 325.0 2nd speed Rack travel in mm : 6.5...6.7 Del.quantity cm3/ : 3.0...4.0 100 s: (2.7...4.3) cm3 : 0.6 Spread 100 s: (1.0) rpm : 1100 3rd speed Rack travel in mm : 6.90...7.10 Del.quantity cm3/: 2.0...7.0 * 100 s: (-) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 4.00 RATED SPEED 1st version Control lever position degrees: 66...74 Testing: 1st rack travel in: 13.90 rpm : 1190...1200 Speed 2nd rack travel in: 4.00 Speed rpm : 1280...1310 4th rack travel in: 1440 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 29...37 Setting point w/out bumper spring

: 1- 6- 3- 2- 5- 4

Firing order

: 325 Speed rpm Rack travel in mm: 6.1 : 325 Speed rpm

Rack travel in mm : 6.00...6.20

Rack travel in mm : 2.00

rpm : 440...500 Speed

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 500 Speed

Rack travel in mm: -Contr.-rod trav.mm: 9.40...9.60

Measurement

Speed 1/min: 500 2nd pressure hPa: 725

Rack travel in m: 14.70...14.80

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.90 rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 200.0...240.0

LOW IDLE

rpm : 325 Speed

Rack travel in mm: 6.50...6.70
Del.quantity cm3/: 30.0...40.0
1000 s: (27.0...43.0)

Spread cm3 : 6.00

1000 s: (10.00)

Remarks:

* = Element disconnected at idle for cylinders 2, 4 and 6. Hydraulic latching of starting delivery.

Latching at 0.75 bar...0.85 bar.

Unlatching at 0.35 bar...0.45 bar.

Full-load delivery not known. Set according to engine test report.

APPLICATION Ship

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1- 8- 5- 4- 7- 2-Firing order 3- 6 Note remarks Test sheet : MMM 14,4 C Edition : 18.12.87 : 0-30-90-120-180-210-Phasing : 5.6.87 270-300 Replaces Tolerance + - 0 Test oil : ISO-4113 : 0.50 (0.75) Combination no. : 0 402 678 805 BASIC SETTING rpm: 800 Injection pump 1st speed Pump designation : PE8P120A520/SRS7143 EP type number Rack travel in mm : 14.90...15.00 : 0 412 628 820 Governor Governor design. : RSUV325...1150P0A358 Del.quantity cm3/: 26.0...26.2 Governer no. : 0 421 829 105 100 s: (25.7...26.5) Customer-spec. information cm3 : 0.5Customer Spread Engine : TBD234V8 100 s: (0.9) 2nd speed rpm : 325.0 Rack travel in mm : 6.5...6.7 Del.quantity cm3/ : 3.0...4.0 TEST BENCH REQUIREMENTS Test oil inlet temp. OC 100 s: (2.7...4.3) cm3 : 0.6 : 38...42 Spread Overflow valve 100 s: (1.0) rpm : 1100 : 1 417 413 025 3rd speed Rack travel in mm : 6.90...7.10 Del.quantity cm3/: 2.0...7.0 * 100 s: (-) Inlet press., bar : 1.50 Test nozzle holder assembly : 1 688 901 019 GUIDE SLEEVE POSITION Control-lever position Degree: -3 Opening : 207...210 rpm : 800 pressure, bar Speed Rack travel in mm : 0.30...0.70 Orifice plate diameter mm Governor spring pre-tension : 0,8 Click setting x : 4.00 : 1 680 750 067 RATED SPEED Test lines Outside diameter 1st version x Wall thickness Control lever : 6.00x1.50x1000 position degrees: 66...74 x Length mm (A) Injection pump setting values Testing: Insp. values in parentheses 1st rack travel in: 13.90 rpm : 1190...1200 Set equal delivery quant. Speed 2nd rack travel in: 4.00 per values Speed rpm : 1280...1310 4th rack travel in: 1440 BEGINNING OF DELIVERY rpm : 0.30...1.40 Test pressure, bar: 25...27 Prestroke mm : 5.20...5.30 LOW IDLE 1 : (5.15...5.35) Control lever

position degrees: 29...37

Rack travel in mm : 9.00...12.00

Setting point w/out bumper spring

Speed rpm : 325 Rack travel in mm : 6.2

Speed rpm : 325 Rack travel in mm : 6.50...6.70

Rack travel in mm : 2.00 Speed rpm : 440...500

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 500 Rack travel in mm : -

Contr.-rod trav.mm: 9.40...9.60

Measurement

Speed 1/min: 500 2nd pressure hPa: 725

Rack travel in m: 14.70...14.80

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.90 Speed rpm : 1190...1200

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.50...6.70
Del.quantity cm3/ : 30.0...40.0

1000 s: (27.0...43.0)

Spread cm3 : 6.00 1000 s: (10.00)

Remarks:

* = Element disconnected at idle for cylinders 2, 4, 6 and 8 Hydraulic latching of starting delivery.

Latching at 0.75 bar...0.85 bar.

Unlatching at 0.35 bar...0.45 bar.

Full-load delivery not known. Set according to engine test report.

Rack travel in mm : 9.00...12.00 BOSCH INJ. PUMP TEST SPECIFICATIONS : 1- 2- 3- 4- 7- 8-Firing order 5- 6 Note remarks : MWM 28,8 D1 : 18.12.87 Test sheet Edition Replaces : 12.11.87 Phasing : 0-30-90-120-225-255-: ISO-4113 Test oil 315-345 Tolerance + - 0 : 0.50 (0.75) Combination no. : 0 402 678 806 BASIC SETTING Injection pump Pump designation : PE8P12OA520/5RS7145 rpm: 800 1st speed EP type number : 0 412 628 822 Rack travel in mm : 14.90...15.01 Governor Governor design. : RSUV325...1150P0A358 Del.quantity cm3/: 26.0...26.2 -1 : 0 421 829 106 Governer no. 100 s: (25.7...26.5) Customer-spec. information Customer : MWM Spread cm3 : 0.5 : TBD234V16 100 s: (0.9) Engine rpm : 325.0 TEST BENCH REQUIREMENTS 2nd speed Rack travel in mm : 6.5...6.7 Del.quantity cm3/ : 3.0...4.0 Test oil inlet temp. OC 100 s: (2.7...4.3) : 38...42 cm3 : 0.6Spread 100 s: (1.0) 3rd speed rpm : 1100 Rack travel in mm : 6.90...7.10 Overflow valve : 1 417 413 025 Del.quantity cm3/ : 2.0...7.0 * Inlet press., bar: 1.50 100 s: (-) Test nozzle holder assembly : 1 688 901 019 GUIDE SLEEVE POSITION Control-lever position Degree: -3 Opening. rpm : 800 pressure, bar : 207...210 Speed Rack travel in mm : 0.30...0.70 Orifice plate Governor spring pre-tension Click setting x : 4.00 : 0,8 diameter mm Test lines : 1 680 750 067 RATED SPEED Outside diameter 1st version x Wall thickness Control lever x Length mm : 6.00x1.50x1000 position degrees: 66...74 (A) Injection pump setting values Testing: Insp. values in parentheses 1st rack travel in: 13.90 Speed rpm : 1190...1200 Set equal delivery quant. 2nd rack travel in: 4.00 per values ____ rpm : 1280...1310 Speed BEGINNING OF DELIVERY 4th rack travel in: 1440 rpm : 0.30...1.40 Test pressure, bar: 25...27 Speed : 5.20...5.30 Prestroke mm LOW IDLE 1

Control lever

: (5.15...5.35)

position degrees: 29...37

Setting point w/out bumper spring

rpm : 325 Speed Rack travel in mm : 6.1 : 325 Speed rpm

Rack travel in mm : 6.50...6.70

Rack travel in mm: 2.00

Speed rpm : 440...500

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Rack travel in mm : -

Contr.-rod trav.mm: 9.40...9.60

Measurement

Speed 1/min: 500 2nd pressure hPa: 725

Rack travel in m: 14.70...14.80

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.90

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

LOW IDLE

: 325 Speed rpm

Rack travel in mm : 6.50...6.70 Del.quantity cm3/: 30.0...40.0

1000 s: (27.0...43.0) Spread cm3 : 6.00

1000 s: (10.00)

Remarks:

* = Element disconnected at idle for cylinders 2, 4, 6 and 8 Hydraulic latching of starting

delivery.

Latching at 0.75 bar...0.85 bar.

Unlatching at 0.35 bar...0.45 bar.

Full-load delivery not known. Set according to engine test report.

Pump runs in tandem

APPLICATION Ship

BOSCH INJ. PUMP TEST SPECIFICATIONS BEGINNING OF DELIVERY Test pressure, bar: 25...27 Note remarks : 5.20...5.30 Prestroke mm Test sheet : MB 12,0 B : (5.15...5.35) Edition : 11.12.87 Rack travel in mm : 9.00...12.00 : 10.85 : 6-2-4-1-5-3 Replaces Firing order : ISO-4113 Test oil Combination no. : 0 402 746 805 Phasing : 0-60-120-180-240-300 Injection pump Tolerance + - 0 Pump designation : PES6P120A720LS7114 : 0.50 (0.75) EP type number : 0 412 726 802 Governor Time to cyl. no. : 6 Governor design. : RQ300/900PA775 : 0 421 801 319 BASIC SETTING Governer no. rpm : 750 Customer-spec. information 1st speed Customer : DAIMLER-BENZ Rack travel in mm : 12.40...12.60 Engine : 0M447 LA Del.quantity cm3/: 22.0...22.2 1st version kW : 300.0 : 1800 100 s: (21.7...22.5) Rated speed cm3 : 0.5TEST BENCH REQUIREMENTS Spread Test oil 100 s: (0.9) inlet temp. OC : 38...42 rpm : 300.0 2nd speed Rack travel in mm : 5.0...5.2 Del.quantity cm3/ : 1.4...2.0 Overflow valve : 1 417 413 025 100 s: (1.1...2.3) cm3 : 0.8 Inlet press., bar: 1.50 Spread 100 s: (1.2) Overflow quantity min. 1/h: 100...110 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -2 Speed rpm: 650 Rack travel in mm: 19.20...20.80 assembly : 1 688 901 019 Opening FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 207...210 Orifice plate 1st version diameter mm rpm : 750 : 0,8 Speed Aneroid pressure h: 750 : 220.0...222.0 Del.quantity 1000 : (217.0...225.0) cm3 : 5.00 Test lines : 1 680 750 067 Spread 1000 : (9.00) Outside diameter x Wall thickness : 6.00x1.50x1000 RATED SPEED x Length mm (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Setting point:

: 650

rpm Rack travel in mm: 20.0

per values ____

Testing: 1st rack travel in: 10.20 rpm : 945...960 Speed 2nd rack travel in: 4.00 Speed rpm : 990...1020 4th rack travel in: 1150 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring Lbw Rack travel in mm: 5.1 Testing: rpm : 100 Speed Minimum rack trave: 6.70 Speed : 300 rpm Rack travel in mm: 5.00...5.20 Rack travel in mm: 2.00 : 370...410 Speed rom TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 11.20...11.40 2nd speed rpm : 750 Rack travel in m: 12.40...12.60 3rd speed rpm : 850 Rack travel in m: 11.80...11.90 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed Rack travel in mm : -Contr.-rod trav.mm: 9.60...9.80 Measurement 1/min : 500 Speed 1st pressure hPa : 350 Rack travel in m: 10.10...10.30 2nd pressure hPa : 550 Rack travel in m: 11.50...11.70 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

Del.quantity cm3/: 197.0...203.0 1000 s: (194.0...206.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 142.0...149.0 1000 s: (139.0...152.0) cm3 : 8.00 Spread

1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.20 rpm : 945...960 Speed

STARTING FUEL DELIVERY

Speed Cbw : 100 Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0)

Remarks:

Speed

1st version

Aneroid pressure h: 750

rpm : 900

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.15...3.25 : (3.10...3.30) Rack travel in mm : 9.00...12.00 Note remarks : 1-5- 3- 6- 2- 4 Firing order : CUM 8,3 D 3 Test sheet Edition : 06.11.87 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Tolerance + = 0 : 0.50 (0.75) Combination no. : 0 403 436 104 Time to cyl. no. : 1 Injection pump Pump designation : PES6MW100/120RS1143 EP type number : 0 413 406 137 BASIC SETTING Governor Governor design. : RQV300...1200MW82-1 1st speed rpm: 1200 : 0 420 083 153 Governer no. Rack travel in mm : 12.00...12.10 Customer-spec. information Customer : CUMMINS/US Del.quantity cm3/: 13.6...13.8 : 6 CTA-830 100 s: (13.4...14.0) Engine : 179.0 cm3 : 0.31st version kW Spread Rated speed : 2400 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Rack travel in mm : 7.1...7.2 Test oil inlet temp. °C : 38...42 Del.quantity cm3/: 1.2...1.6 100 s: (1.0...1.8) cm3 : 0.3 Overflow valve Spread : 1 417 413 047 100 s: (0.5) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 017 GUIDE SLEEVE TRAVEL assembly 1st speed rpm : 1250 : 7.60...7.80 Opening travel mm 2nd speed rpm: 1350 : 207...210 pressure, bar travel mm : 8.60...9.00 3rd speed rpm : 350 Orifice plate : 0.6 travel mm : 1.20...1.60 diameter mm 4th speed rpm : 800 : 4.90...5.50 travel mm Test lines : 1 680 750 008 GUIDE SLEEVE POSITION Outside diameter Control-lever position Degree: -1 x Wall thickness : 6.00x2.00x600 rpm : 1325 x Length mm Speed Rack travel in mm : 15.20...17.80 (A) Injection pump setting values FULL LOAD DELIV. AT FULL LOAD STOP Insp. values in parentheses Set equal delivery quant. per values 1st version Speed rpm : 1200 Aneroid pressure h: 700 BEGINNING OF DELIVERY Del.quantity : 136.0...138.0 1000 : (134.0...140.0) Test pressure, bar: 30...32

cm3 : 3.50 Rack travel in m: 11.90...12.20 Spread 1000 : (6.00) 3rd pressure hPa : 700 Rack travel in m: 12.50...12.60 RATED SPEED START CUT-OUT 1st version Control lever 1/min : 270 (280) Speed position degrees: 42...50 FUEL DELIVERY CHARACTERISTICS Testing: 1st rack travel in: 11.00 rpm : 1240...1250 Speed 1st version 2nd rack travel in: 4.00 Aneroid pressure h: 700 Speed rpm : 1370...1400 4th rack travel in: 1455 rpm : 750 Speed Del.quantity cm3/: 136.0...138.0 1000 s: (134.0...140.0) rpm : 0.00...1.00 Speed cm3 : 5.00Spread 1000 s: (7.0) LOW IDLE 1 Aneroid pressure h: -Control lever position degrees: 11...19 Speed Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 7.1 BREAKAWAY Testing: Speed : 100 rpm Minimum rack trave: 9.00 1st version Speed rpm : 350 Rack travel in mm : 7.10...7.20 CONSTANT REGULATION Speed rpm : 350...500 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Speed Rack travel in m: 12.00...12.10 2nd speed rpm : 750 Rack travel in m: 12.50...12.60
3rd speed rpm : 1000
Rack travel in m: 12.00...12.10
4th speed rpm : 900 LOW IDLE Rack travel in m: 12.10...12.30 Aneroid/Altitude Compensator Test Spread 1st version Setting Remarks: rpm : 500 Rack travel in mm : -Contr.-rod trav.mm: 11.00...11.10 cylinder 1 Measurement 1/min : 500 Speed 1st pressure hPa : 390

rpm : 500 Del.quantity cm3/: 108.0...110.0 1000 s: (106.0...112.0) 1mm rack travel less than full load rack tr: 11.00 rpm : 1240...1250 STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 205.0...225.0 1000 s: (202.0...228.0) Rack travel in mm: 19.00...21.00 Speed rpm : 350 Rack travel in mm : 7.10...7.20 Del.quantity cm3/: 12.0...16.0 1000 s: (10.0...18.0) cm3 : 3.501000 s: (5.50) Start-of-delivery mark at 10° cam rotation angle after start of delivery,

Rack travel in m: 11.40...11.50

2nd pressure hPa : 480

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks Test sheet : CUM 8,3 F : 0-60-120-180-240-300 Phasing Edition : 19.02.88 Tolerance + - 0 : 0.50 (0.75) Replaces : ISO-4113 Test oil BASIC SETTING Combination no. : 0 403 436 105 1st speed rpm : 1200 Injection pump Pump designation : PES6MW100/120RS1169 Rack travel in mm : 11.90...12.00 EP type number : 0 413 406 153 Governor Del.quantity cm3/: 14.1...14.3 Governor design. : RQV350...1200MW78-1 Governer no. : 0 420 083 156 100 s: (13.9...14.5) cm3 : 0.3Customer-spec. information Spread Customer : CDC 100 s: (0.6) : 6CTA830 Engine rpm : 350.0 2nd speed Rack travel in mm : 5.6...5.8 Del.quantity cm3/ : 1.6...2.0 1st version kW : 197.0 : 2400 Rated speed 100 s: (1.4...2.2) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. OC : 38...42 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1330 Inlet press., bar: 1.50 Speed Test nozzle holder Rack travel in mm : 15,20...17.80 assembly : 1 688 901 017 FULL LOAD DELIV. AT FULL LOAD STOP Opening : 207...210 pressure, bar 1st version rpm : 1200 Speed Aneroid pressure h: 600 Orifice plate : 141.0...143.0 1000 : (139.0...145.0) diameter mm : 0.6 Del.quantity cm3 : 3.50 Spread : 1 680 750 008 Test lines 1000 : (6.00) Outside diameter RATED SPEED x Wall thickness : 6.00X2.00X600 x Length mm 1st version Control lever (A) Injection pump setting values position degrees: 42...50 Insp. values in parentheses Set equal delivery quant. Testing: per values ___ 1st rack travel in: 10.90 Speed rpm : 1240...1250 BEGINNING OF DELIVERY 2nd rack travel in: 4.00 rpm : 1385...1415 Test pressure, bar: 30...32 Speed 4th rack travel in: 1500 : 3.00...3.10 Prestroke mm rom : 0.00...1.00 Speed : (2.95...3.15) Rack travel in mm : 9.00...12.00 LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 5.7

Testing:

rpm : 100 Speed ? Minimum rack trave: 7.50

: 350 rpm

Rack travel in mm: 5.60...5.80

CONSTANT REGULATION

rpm : 370...500 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Rack travel in mm : 300
Contr.-rod trav.mm: 11.00...11.10

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.70...10.80 2nd pressure hPa : 375

Rack travel in m: 11.50...11.80

3rd pressure hPa : 600

Rack travel in m: 11.90...12.00

START CUT-OUT

1/min : 270 (280) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 600 rpm : 750 Speed

Del.quantity cm3/: 137.5...141.5 1000 s: (135.0...143.0)

cm3 : 5.00Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm

Del.quantity cm3/: 113.5...115.5 1000 s: (111.5...117.5) Spread cm3: 3.50

1000 s: (6.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 1240...1250

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 218.0...228.0 1000 s: (215.0...231.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.60...5.80 Del.quantity cm3/: 16.0...20.0

1000 s: (14.0...22.0)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Start-of-delivery mark 10.5° cam angle

after start of delivery cyl. 1

: 1-3-4-2 BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order Note remarks : VOL 4,5 B Test sheet : 0-90-180-270 Phasing : 19.02.88 Edition Tolerance + - 0 Replaces : 0.50 (0.75) : 4.85 Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 444 101 1st speed rpm : 700 Injection pump Pump designation : PES4MW100/320RS1102 Rack travel in mm : 12.00...12.10 EP type number : 0 413 404 101 Governor Del.quantity cm3/: 10.0...10.2 Governor design. : RQV300...1100MW39 Governer no. : 0 420 083 045 100 s: (9.8...10.4) cm3 : 0.3Customer-spec. information Spread Customer : VOLVO-BM 100 s: (0.6) Engine : TD45 rpm : 300.0 2nd speed Rack travel in mm: 6.4...6.5 : 85.0 1st version kW Del.quantity cm3/: 0.9...1.3 Rated speed : 2200 100 s: (0.7...1.6) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 000 GUIDE SLEEVE TRAVEL 1st speed rpm : 1220 : 9.20...9.60 Inlet press., bar: 1.50 travel mm rpm : 1150 2nd speed Test nozzle holder : 8.40...8.60 travel mm : 0 681 343 009 rpm : 420 assembly 3rd speed : 1.70...2.30 travel mm rpm : 300 Opening 4th speed : 1.00...1.40 pressure, bar : 173...176 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 014 Control-lever position Degree: -1 rpm : 1100 Outside diameter Speed x Wall thickness Rack travel in mm : 15.20...17.80 : 6.00x2.00x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Speed rpm : 700 per values ____ : 100.0...102.0 Del.quantity 1000 : (98.0...104.0) BEGINNING OF DELIVERY : 3.50

Test pressure, bar: 30...32

: 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00

1st version

RATED SPEED

Spread

cm3

1000

: (6.00)

Control lever position degrees: 42...50 Setting point: Speed rpm : 1100 Rack travel in mm: 16.5 Testing: 1st rack travel in: 11.00 Speed rpm : 1140...1150 2nd rack travel in: 4.00 Speed rpm : 1190...1220 4th rack travel in: 1350 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 7...15 Setting point w/out bumper spring rpm : 300° Speed Rack travel in mm: 6.4 Testing: Speed rpm : 100 Minimum rack trave: 8.00 Speed rpm : 300 Rack travel in mm : 6.40...6.50 Rack travel in mm : 2.00 rpm : 380...440 Speed START CUT-OUT Speed 1/min : 220 (250) FUEL DELIVERY CHARACTERISTICS 1st version rpm : 1000 Speed Del.quantity cm3/: 101.0...105.0 1000 s: (99.0...107.0) cm3 : 5.50 Spread 1000 s: (7.0) BREAKAWAY

LOW IDLE Speed

rpm : 300

Rack travel in mm : 6.40...6.50

Del.quantity cm3/: 9.5...13.5 1000 s: (7.0...16.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

1st version

Speed

Speed

1mm rack travel less than

full load rack tr: 11.00

rpm

Del.quantity cm3/: 140.0...0.0

STARTING FUEL DELIVERY

rpm : 1140...1150

: 100

1000 s: (137.0...0.0)

: 1- 3- 4- 2 BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order Note remarks Test sheet : VOL 4,5 B 2 : 0-90-180-270 Phasing Edition : 19.02.88 Tolerance + - 0 Replaces : 12.83 : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 444 102 rpm: 700 1st speed Injection pump Rack travel in mm : 11.00...11.10 Pump designation : PES4MW100/320RS1102 : 0 413 404 101 EP type number Del.quantity cm3/: 8.2...8.4 Governor Governor design. : RQV300...1150MW39 Governer no. : 0 420 083 046 100 s: (8.0...8.6) cm3 : 0.3Customer-spec. information Spread : VOLVO-BM Customer 100 s: (0.6) Engine : D45 rpm : 300.0 2nd speed Rack travel in mm : 6.5...6.6 Del.quantity cm3/ : 1.3...1.7 1st version kW : 60.0 Rated speed : 2300 100 s: (1.0...1.9) TEST BENCH REQUIREMENTS Spread cm3 : 0.3100 s: (0.5) Test oil inlet temp. OC : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 000 GUIDE SLEEVE TRAVEL rpm : 1220 1st speed : 9.20...9.60 Inlet press., bar: 1.50 travel mm 2nd speed rpm : 1150 Test nozzle holder : 8.40...8.60 travel mm : 0 681 343 009 3rd speed rpm : 420 assembly : 1.70...2.30 travel mm rpm : 300 4th speed Opening. : 173...176 travel mm : 1.00...1.40 pressure, bar GUIDE SLEEVE POSITION : 1 680 750 014 Test lines Control-lever position Degree: -1 rpm : 1150 Outside diameter Speed x Wall thickness Rack travel in mm : 15.20...17.80 : 6.00x2.00x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 700 Set equal delivery quant. Speed : 82.0...84.0 Del.quantity per values 1000 : (80.0...86.0) : 3.50 BEGINNING OF DELIVERY Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Rack travel in mm : 9.00...12.00

DO1

Prestroke mm

Test pressure, bar: 30...32

: 2.80...2.90

: (2.75...2.95)

Control lever position degrees: 46...54 Testing: 1st rack travel in: 10.00 Speed rpm : 1190...1200 2nd rack travel in: 4.00 Speed rpm : 1245...1275 4th rack travel in: 1400 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 7...15 Setting point w/out bumper spring rpm : 300° Speed ` Rack travel in mm: 5.6 Testing: rpm : 100 Speed -Minimum rack trave: 7.20 Speed rpm: 300 Rack travel in mm : 5.60...5.70 CONSTANT REGULATION rpm : 320...520 Speed START CUT-OUT 1/min : 220 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1000 Del.quantity cm3/ : 84.0...88.0 1000 s: (82.0...90.0) cm3 : 5.50 Spread 1000 s: (7.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1190...1200 Speed STARTING FUEL DE'LIVERY rpm : 100 Speed

Del.quantity cm3/: 0.0...140.0 1000 s: (0.0...143.0)

rpm : 300

LOW IDLE

Speed

002

Rack travel in mm : 6.50...6.60
Del.quantity cm3/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm3 : 3.50

Remarks:

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1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-3-4-2 firing order Note remarks Test sheet : VOL 4,5 A : 0-90-180-270 Phasing : 19.02.88 Edition Tolerance + - D Replaces : 03.83 : 0,50 (0,75) Test oil : ISO-4113 BASIC SETTING : 0 403 444 103 Combination no. rpm : 700 1st speed Injection pump Pump designation : PES4MW100/320RS1102 Rack travel in mm : 11.00...11.10 EP type number : 0 413 404 101 Del.quantity cm3/: 8.5...8.7 Governor Governor design. : RQV300...1150MW39-1 : 0 420 083 047 100 s: (8.3...8.9) Governer no. Customer-spec. information Spread cm3 : 0.3Customer : VOLVO-BM 100 s: (0.6) Engine : TD45 rpm : 300.0 2nd speed Rack travel in mm: 6.4...6.5 1st version kW : 70.0 Del.quantity cm3/: 1.3...1.7 : 2300 Rated speed 100 s: (1.0...1.9) cm3 : 0.3 TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. OC (B) Setting of injection pump : 38...42 with governor Overflow valve : 1 417 413 000 GUIDE SLEEVE TRAVEL 1st speed rpm : 1220 : 9.20...9.60 Inlet press., bar: 1.50 travel mm rpm : 1150 2nd speed : 8.40...8.60 Test nozzle holder travel mm : 0 681 343 009 3rd speed rpm : 420 assembly : 1.70...2.30 travel mm 4th speed rpm : 300 Opening : 1.00...1.40 pressure, bar : 173...176 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 014 Control-lever position Degree: -1 rpm : 1150 Outside diameter Rack travel in mm : 15.20...17.80 x Wall thickness : 6.00X2.00X600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values 1st version Insp. values in parentheses rpm : 700 Speed Set equal delivery quant. : 85.0...87.0 Del.quantity per values ____ 1000 : (83.0...89.0) BEGINNING OF DELIVERY : 3.50 cm3 Spread 1000 : (6,00) Test pressure, bar: 30...32 : 2.80...2.90 RATED SPEED Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 1st version

D03

Control lever position degrees: 42...50 Testing: 1st rack travel in: 10.00 Speed rpm : 1190...1200 2nd rack travel in: 4.00 Speed rpm : 1230...1260 4th rack travel in: 1400 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 7...15 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 5.6 Testing: rpm : 100 Speed Minimum rack trave: 7.30 Speed rpm: 300 Rack travel in mm: 5.60...5.70 CONSTANT REGULATION rpm : 320...520 Speed START CUT-OUT 1/min: 220 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1000
Del.quantity cm3/: 88.0...92.0
1000 s: (86.0...94.0)
Spread cm3 : 5.50 1000 s: (7.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1190...1200 Speed STARTING FUEL DE'LIVERY rpm : 100 Speed Del.quantity cm3/: 0.0...140.0 1000 s: (0.0...143.0) LOW IDLE

rpm : 300

Speed

004

Rack travel in mm : 6.40...6.50
Del.quantity cm3/: 13.0...17.0
1000 s: (10.5...19.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

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BOSCH INJ. PUMP TEST SPECIFICATIONS	Firing order : 1-3-4-2
Note remarks	
Test sheet : VOL 4,5 D Edition : 19.02.88	Phasing : 0-90-180-270
Edition : 19.02.88 Replaces : 12.85 Test oil : ISO-4113	Tolerance + - 0 : 0.50 (0.75)
Combination no. : 0 403 444 104	BASIC SETTING
Injection pump	1st speed rpm : 700
Pump designation : PES4MW100/320RS1102 EP type number : 0 413 404 101	Rack travel in mm : 12.2012.30
Governor	Del.quantity cm3/: 10.010.2
Governor design. : RQV3001200MW39-2 Governer no. : 0 420 083 059	100 s: (9.810.4)
Customer-spec. information Customer : VOLVO-BM	Spread cm3 : 0.3
1	100 s: (0.6)
1	2nd speed rpm : 300.0
1st version kW : 82.5 Rated speed : 2400	Rack travel in mm : 6.56.6 Del.quantity cm3/ : 1.31.7
TEST BENCH REQUIREMENTS	100 s: (0.71.6) Spread cm3 : 0.3 100 s: (0.5)
Test oil inlet temp. °C : 3842	(B) Setting of injection pump
1	with governor
0verflow valve : 1 417 413 000	GUIDE SLEEVE TRAVEL
Inlet press., bar : 1.50	1st speed rpm : 1300 travel mm : 9.5010.00
Test nozzle holder	2nd speed rpm : 1250 travel mm : 8.809.00
assembly : 0 681 343 009	3rd speed rpm : 380 travel mm : 1.502.10
Opening pressure, bar : 173176	4th speed rpm : 300 travel mm : 1.001.40
	GUIDE SLEEVE POSITION
Test lines : 1 680 750 014	Control-lever position Degree: -1
Outside diameter	Speed rpm : 1200 Rack travel in mm : 15.2017.80
x Wall thickness	
(A) Injection pump setting values	FULL LOAD DELIV. AT FULL LOAD STOP
Insp. values in parentheses	1st version
Set equal delivery quant.	Speed rpm : 700 Del.quantity : 100.0102.0
	1000 : (98.0104.0)
BEGINNING OF DELIVERY Test pressure, bar: 3032	Spread cm3 : 3.50 1000 : (6.00)
Prestroke mm : 2.802.90	RATED SPEED
: (2.752.95) Rack travel in mm : 9.0012.00	1st version

Control lever position degrees: 44...52 Testing: 1st rack travel in: 11.20 Speed rpm : 1240...1250 2nd rack travel in: 4.00 Speed rpm : 1290...1320 4th rack travel in: 1450 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 8...16 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 6.5 Testing: rpm : 100 Speed Minimum rack trave: 8.10 rpm : 300 Speed Rack travel in mm : 6.50...6.60 Rack travel in mm: 2.00 Speed rpm : 400...550 START CUT-OUT 1/min : 220 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version rpm : 1000 Speed Del.quantity cm3/: 101.0...105.0 1000 s: (99.0...107.0) cm3 : 5.50 Spread 1000 s: (7.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.20 rpm : 1240...1250 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 130.0...140.0 1000 s: (127.0...143.0) LOW IDLE

Speed rpm : 300 Rack travel in mm : 6.50...6.60

006

Del.quantity cm3/: 13.0...17.0 1000 s: (7.0...16.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

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BOSCH INJ. PUMP TEST SPECIFICATIONS : 1- 3- 4- 2 Firing order Note remarks : VOL 4,5 F : 19.02.88 : 0-90-180-270 Test sheet Phasing Edition Tolerance + - 0 : 0.50 (0.75) Replaces : 04.85 Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 444 106 1st speed rpm: 700 Injection pump Rack travel in mm : 11.70...11.80 Pump designation : PES4MW100/320RS1102 EP type number : 0 413 404 101 Del.quantity cm3/: 9.4...9.6 Governor Governor design. : RQV300...1100MW39-4 : 0 420 083 067 100 s: (9.2...9.8) Governer no. : 0.3 cm3 Customer-spec. information Spread Customer : VOLVO-BM 100 s: (0.6) : D45 Engine rpm : 300.0 2nd speed Rack travel in mm : 6.4...6.5 Del.quantity cm3/ : 1.3...1.7 : 82.5 1st version kW : 2200 Rated speed 100 s: (1.0...1.9) cm3 : 0.3 TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 000 GUIDE SLEEVE TRAVEL 1st speed rpm : 1220 : 9.20...9.60 Inlet press., bar: 1.50 travel mm 2nd speed rpm : 1150 : 8.40...8.60 Test nozzle holder travel mm : 0 681 343 009 3rd speed rpm : 420 assembly : 1.70...2.30 travel mm : 300 4th speed Opening rpm : 1.00...1.40 : 173...176 travel mm pressure, bar GUIDE SLEEVE POSITION Test lines : 1 680 750 014 Control-lever position Degree: -1 rpm : 1150 Outside diameter x Wall thickness Rack travel in mm : 15.20...17.80 x Length mm : 6.00x2.00x600 FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 700 Set equal delivery quant. Speed : 94.0...96.0 per values ____ Del quantity 1000 : (92.0...98.0) : 3.50 BEGINNING OF DELIVERY cm3Spread 1000 : (6.00) Test pressure, bar: 30...32 : 2.80...2.90 RATED SPEED Prestroke mm : (2.75...2.95)

1st version

007

Rack travel in mm : 9.00...12.00

Control lever position degrees: 44...52 Testing: 1st rack travel in: 10.70 Speed rpm : 1140...1150 2nd rack travel in: 4.00 Speed rpm : 1195...1225 4th rack travel in: 1350 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 8...16 Setting point w/out bumper spring rpm : 300' Speed Rack travel in mm: 6.4 Testing: Speed rpm : 100 Minimum rack trave: 8.00 Speed rpm: 300 Rack travel in mm : 6.40...6.50 CONSTANT REGULATION rpm : 320...650 Speed START CUT-OUT 1/min : 220 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1000 Del.quantity cm3/: 96.5...99.5 1000 s: (95.0...101.0) cm3 : 5.50 Spread 1000 s: (7.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.70 rpm : 1140...1150 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 130.0...140.0 1000 s: (127.0...143.0) LOW IDLE

Speed

008

rpm : 300

Rack travel in mm: 6.40...6.50

Del.quantity cm3/: 13.0...17.0

1000 s: (10.5...19.5)

Spread cm3: 3.50

1000 s: (5.50)

Remarks:

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BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-3-4-2 Firing order Note remarks Test sheet : VOL 4,5 E : 0-90-180-270 Phasing : 19.02.88 Edition Tolerance + - 0 : 0.50 (0.75) Replaces : 12.85 Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 444 107 rpm : 700 1st speed Injection pump Pump designation : PES4MW100/320RS1102 Rack travel in mm : 12.60...12.70 EP type number : 0 413 404 101 Del.quantity cm3/: 10.9...11.1 Governor Governor design.: RQV300...1100MW39-5 Governer no. : 0 420 083 068 100 s: (10.7...11.3) Customer-spec. information Spread cm3 : 0.3Customer : VOLVO-BM 100 s: (0.6) : D45 Engine rpm : 300.0 2nd speed : 85.0 1st version kW Rack travel in mm: 6.4...6.5 Rated speed : 2200 Del.quantity cm3/: 1.3...1.7 100 s: (1.0...1.9) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 000 GUIDE SLEEVE TRAVEL 1st speed rpm : 1220 Inlet press., bar: 1.50 travel mm : 9.20...9.60 rpm : 1150 2nd speed Test nozzle holder : 8.40...8.60 travel mm rpm : 420 : 0 681 343 009 3rd speed assembly : 1.70...2.30 travel mm rpm : 300 4th speed Opening : 1.00...1.40 travel mm : 173...176 pressure, bar GUIDE SLEEVE POSITION Test lines : 1 680 750 014 Control-lever position Degree: -1 грт : 1100 Outside diameter Rack travel in mm : 15.20...17.80 x Wall thickness : 6.00X2.00X600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 700 Set equal delivery quant. Speed : 109.0...111.0 per values ___ Del.quantity 1000 : (107.0...113.0) cm3 : 3.50 BEGINNING OF DELIVERY Spread 1000 : (6.00) Test pressure, bar: 30...32 : 2.80...2.90 RATED SPEED Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 1st version

009

Control lever position degrees: 44...52 Testing: 1st rack travel in: 11.60 Speed rpm : 1140...1150 2nd rack travel in: 4.00 Speed rpm : 1210...1240 4th rack travel in: 1350 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 10...18 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.4 Testing: Speed rpm : 100 Minimum rack trave: 8.00 Speed rpm: 300 Rack travel in mm : 6.40...6.50 CONSTANT REGULATION rpm : 320...450 Speed FUEL DELIVERY CHARACTERISTICS 1st version rpm : 1000 Speed Del.quantity cm3/: 110.0...114.0 1000 s: (108.0...116.0) cm3 : 5.50 Spread 1000 s: (7.0) RACK STOP ADJUSTMENT rpm : 100 Speed BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.60 Speed rpm : 1140...1150 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 130.0...140.0 1000 s: (127.0...143.0) LOW IDLE

: 300

rpm

Speed

D10

Rack travel in mm : 6.40...6.50 Del.quantity cm3/: 13.0...17.0 1000 s: (10.5...19.5) cm3 : 3.50

:

Spread 1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : VOL 4,5 K Edition : 19.02.88 : 12.85 Replaces Test oil : ISO-4113 Combination no. : 0 403 444 108 Injection pump Pump designation : PES4MW100/320RS1116 EP type number : 0 413 404 102 Governor Governor design. : RQV300...1100MW51 Governer no. : 0 420 083 072 Customer-spec. information Customer : VOLVO-BM Engine : TD45-EM 1st version kW : 85.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening. pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

Phasing : 0-90-180-270 Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm : 700 Rack travel in mm : 12.50...12.60 Del.quantity cm3/: 11.6...11.8 100 s: (11.4...12.0) cm3 : 0.3Spread 100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm : 5.8...5.9 Del.quantity cm3/ : 1.3...1.7 100 s: (1.0...1.9) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1220 : 9.20...9.60 travel mm 2nd speed rpm : 1150 : 8.40...8.60 travel mm 3rd speed rpm : 420 travel mm : 1.70...2.30 4th speed rpm : 300 : 1.00...1.40 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1100 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 700 Speed Aneroid pressure ha 750 Del.quantity : 116.0...118.0 1000 : (114.0...120.0) cm3 : 3.50 1000 : (6.00) Spread RATED SPEED

: 1-3-4-2

Firing order

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.20...3.30

: (3,15,...3,35)

1st version Control lever Testing: Speed

position degrees: 48...56

1st rack travel in: 11.50 rpm : 1140...1150

2nd rack travel in: 4.00 Speed rpm : 1200...1230

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 8...16

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 5.8

Testing:

rpm : 100 Speed Minimum rack trave: 8.00 : 300 Speed Lbw

Rack travel in mm : 5.80...5.90

CONSTANT REGULATION

rpm : 330...450 Speed

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 700 Speed Rack travel in mm: 265

Contr.-rod trav.mm: 10.60...10.70

Measurement

Speed 1/min : 700

1st pressure hPa : 750

Rack travel in m: 12.50...12.60

2nd pressure hPa : -

Rack travel in m: 10.50...10.60

3rd pressure hPa : 520

Rack travel in m: 12.40...12.60

START CUT-OUT

1/min : 220 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750

Speed rpm : 1000
Del.quantity cm3/ : 117.0...121.0

1000 s: (114.5...123.5)

cm3 : 5.50 Spread Aneroid pressure h: -

Speed rpm : 700 Del.quantity cm3/ : 79.0...81.0 1000 s: (76.5...83.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 150.0...160.0

1000 s: (147.0...163.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 5.80...5.90 Del.quantity cm3/: 13.0...17.0 1000 s: (10.5...19.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

D12

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : 12.02.88 Edition : 04.86 Replaces

Test oil : ISO-4113

: 0 403 446 122 Combination no.

Injection pump

Pump designation : PES6MW100/320RS1016

: 0 413 406 010 EP type number

Governor

Governor design. : RQV300...1400MW25-1

Governer no. : 0 420 083 039

Customer-spec. information Customer : RVI

: MIDRO6.02-12 Engine

: 125.0 1st version kW : 2800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 173...176 pressure, bar

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.00...3.10 Prestroke mm

: (2.95...3.15)

Rack travel in mm : 9.00...12.00

: RVI 8,8 K 2

: 0-60-120-180-240-300 Phasing

: 1-5-3-6-2-4

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

Firing order

1st speed rpm: 1400

Del.quantity cm3/: 9.1...9.3

100 s: (8.9...9.5)

: 0.3 Spread cm3

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 4.8...4.9 Del.quantity cm3/: 0.9...1.3

100 s: (0.7...1.6)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1475

travel mm : 8.40...9.20

rpm : 1350 2nd speed

: 7.60...7.80 travel mm

rpm : 500 3rd speed : 2.70...3.10 travel mm

rpm : 300 4th speed

: 1.40...2.20 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1400 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400 Aneroid pressure h: 500

: 91.5...93.5 Del.quantity

1000 : (89.5...95.5) cm3 : 3.50

cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 58...66

Testing:

1st rack travel in: 10.10

Speed rpm : 1455...1465

2nd rack travel in: 4.00

Speed rpm : 1575...1605

4th rack travel in: 1700

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 8...16

Setting point w/out bumper spring

rpm : 300° Rack travel in mm: 5.2

Speed rpm : 300
Rack travel in mm : 5.90...5.80
Rack travel in mm : 2.00

rpm : 490...550 Speed

: 200 Speed rpm

Maximum rack trave: 7.50

Aneroid/Altitude

Compensator Test

1st version

Setting

rpm : 500 Speed

Rack travel in mm: 500

Measurement

Speed 1/min : 500

Rack travel in m: 9.80...9.70 2nd pressure hPa : 200

Rack travel in m: 10.30...10.20

3rd pressure hPa : 230

Rack travel in m: 10,90...10.70

START CUT-OUT

1/min : 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 500

rpm : 900 Speed

Del.quantity cm3/: 87.5...91.5

1000 s: (85.5...93.5) cm3 : 5.00

Spread

1000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 56.0...58.0

1000 s: (53.5...60.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

Speed rpm : 1455...1465

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 94.0...104.0

1000 s: (91.0...107.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 6.30...6.20 Del.quantity cm3/: 9.5...13.5 1000 s: (7.0...16.0)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Start-of-delivery mark is 8° after start of delivery with control-rod

travel = 10.5 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1- 5- 3- 6- 2- 4 Note remarks : RVI 8,8 K Test sheet : 0-60-120-180-240-300 Phasing : 12.02.88 Edition Tolerance + - 0 Replaces : 12.85 : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 123 rpm : 1300 1st speed Injection pump Pump designation : PES6MW100/320RS1016 Del.quantity cm3/: 8.9...9.1 EP type number : 0 413 406 010 100 s: (8.7...9.3) Governor Governor design: : RQV300...1300MW25 cm3 : 0.3Governer no. : 0 420 083 030 Spread 100 s: (0.6) Customer-spec. information Customer rpm : 300.0 2nd speed Rack travel in mm : 5.3...5.4 Del.quantity cm3/ : 0.9...1.3 Engine : MIDRO6.02-12 : 125.0 100 s: (0.7...1.6) 1st version kW cm3 : 0.3 Rated speed : 2600 Spread 100 s: (0.5) TEST BENCH REQUIREMENTS (B) Setting of injection pump Test oil with governor inlet temp. °C : 38...42 GUIDE SLEEVE TRAVEL 1st speed rpm : 1475 Overflow valve : 8.40...9.20 : 1 417 413 000 travel mm 2nd speed rpm : 1350 travel mm : 7.60...7.80 Inlet press., bar: 1.50 3rd speed rpm : 500 Test nozzle holder travel mm : 2.70...3.10 : 0 681 343 009 4th speed rpm : 300 assembly : 1.40...2.20 travel mm Opening GUIDE SLEEVE POSITION : 173...176 pressure, bar Control-lever position Degree: -1 : 1 680 750 014 rpm : 1300 Test lines Rack travel in mm : 15.20...17.80 Outside diameter x Wall thickness FULL LOAD DELIV. AT FULL LOAD STOP : 6.00x2.00x600 x Length mm 1st version rpm : 1300 (A) Injection pump setting values Speed Aneroid pressure h: 665 Insp. values in parentheses Del.quantity : 89.5...91.5

1000 : (87.5...93.5)

: 3.50

1000 : (6.00)

cm3

Spread

RATED SPEED

1st version

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

D15

Control lever position degrees: 58...66 Testing: 1st rack travel in: 10.10 Speed rpm : 1370...1380 2nd rack travel in: 3.90 Speed rpm : 1495...1525 4th rack travel in: 1650 Speed rpm : 1.00...0.00 LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.2 Testing: Speed rpm: 100 Speed rpm: 300 Rack travel in mm: 5.90...5.80 Speed rpm: 200 Maximum rack trave: 3.60 CONSTANT REGULATION rpm : 340...600 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Rack travel in mm: 665 Measurement Speed 1/min : 500 Rack travel in m: 9.90...9.80 2nd pressure hPa : 200 Rack travel in m: 10.30...10.20 3rd pressure hPa : 230 Rack travel in m: 10.90...10.70 START CUT-OUT Speed 1/min: 230 (250) FUEL DELIVERY CHARACTERISTICS

Del.quantity cm3/: 56.0...58.0 1000 s: (54.0...60.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.10 rpm : 1370...1380 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 95.0...105.0 1000 s: (90.0...110.0) LOW IDLE rpm : 300 Speed Rack travel in mm : 5.80...5.70 Remarks:

Del.quantity cm3/: 9.5...13.5 1000 s: (7.0...16.0) Spread cm3 : 3.50 1000 s: (5.50)

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

Spread

Speed

1st version

Aneroid pressure h: 665

Aneroid pressure h: -

rpm : 900 Del.quantity cm3/: 85.0...89.0 1000 s: (83.0...91.0)

cm3 : 5.00

1000 s: (7.0)

rpm : 500

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : VOL 6,1 H : 0-60-120-180-240-300 Phasing Edition : 19.02.88 Tolerance + - 0 : 0.50 (0.75) Replaces : 4.86 Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 152 rpm : 1000 1st speed Injection pump Pump designation : PES6MW100/320RS1119 Rack travel in mm : 11.40...11.50 EP type number : 0 413 406 113 Del.quantity cm3/: 9.0...9.2 Governor Governor design. : RQV300...1400MW57 Governer no. ` : 0 420 083 078 100 s: (8.8...9.4) cm3 : 0.3Customer-spec. information Spread Customer : VOLVO 100 s: (0.6) : TD 61-3012 Engine rpm : 300.0 2nd speed Rack travel in mm: 6.9...7.0 1st version kW : 132.0 : 2800 Del.quantity cm3/: 1.6...2.0 Rated speed 100 s: (1.3...2.2) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 000 GUIDE SLEEVE TRAVEL 1st speed rpm : 1580 Inlet press., bar: 1.50 travel mm : 9.50...9.90 rpm : 1450 2nd speed : 8.40...8.60 Test nozzle holder travel mm rpm : 550 : 0 681 343 009 3rd speed assembly : 3.40...4.00 travel mm rpm : 300 4th speed Opening : 1.20...1.60 : 172...175 travel mm pressure, bar GUIDE SLEEVE POSITION Test lines : 1 680 750 014 Control-lever position Degree: 1 rpm : 1480 Outside diameter Speed x Wall thickness Rack travel in mm : 15.20...17.80 : 6.00x2.00x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Speed rpm : 1000 Aneroid pressure h: 700 per values 90.0...92.0 1000 : (88.0...94.0) Del.quantity BEGINNING OF DELIVERY cm3 : 3.50Test pressure, bar: 30...32 Spread 1000 : (6.00) : 3.10...3.20 Prestroke mm : (3.05...3.25) RATED SPEED

Rack travel in mm : 9.00...12.00

D17

1st version Control lever

position degrees: 58...66

Testing:

1st rack travel in: 10.60

rpm : 1440...1450 Speed

2nd rack travel in: 4.00 Speed rpm : 1595...1625

4th rack travel in: 1725

rpm : 0.10...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 12...20 Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.9

Testing:

Speed : 100 rpm Minimum rack trave: 8.50

rpm : 300 Speed

Rack travel in mm : 6.90...7.00

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 550 Speed Rack travel in mm: 440

Contr.-rod trav.mm: 11.20...11.30

Measurement

1/min : 550 Speed

1st pressure hPa : -

Rack travel in m: 10.10...10.20 2nd pressure hPa : 300

Rack travel in m: 10.30...10.60

3rd pressure hPa : 700

Rack travel in m: 11.40...11.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 1000 Speed

Del.quantity cm3/: 75.0...77.0

1000 s: (73.0...79.0)

RACK STOP ADJUSTMENT

rpm : 100 Speed

BREAKAWAY

D18

1st version

1mm rack travel less than

full load rack tr: 10.60

Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.0...160.0

1000 s: (137.0...163.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm: 6.90...7.00 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.00)

Remarks:

Rack travel in mm : 9.00...12.00 BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : VOL 6,1 G : 19.02.88 Edition : 0-60-120-180-240-300 Phasing : 05.11.86 Replaces Test oil : ISO-4113 Tolerance + - D : 0.50 (0.75) Combination no. : 0 403 446 153 BASIC SETTING Injection pump 1st speed rpm : 1000 Pump designation : PES6MW100/320RS1119-Rack travel in mm : 12.00...12.10 EP type number : 0 413 406 114 Del.quantity cm3/: 10.4...10.6 Governor Governor design.: RQV300..1400MW57-1 Governer no. : 0 420 083 079 100 s: (10.3...10.9) cm3 : 0.3Customer-spec. information Spread Customer 100 s: (0.6) Engine : TD 61..3012 2nd speed rpm : 300.0 Rack travel in mm : 6.3...6.4 Del.quantity cm3/ : 1.6...2.0 : 150.0 1st version kW Rated speed : 2800 100 s: (1.3...2.2) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. OC : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 000 GUIDE SLEEVE TRAVEL 1st speed rpm : 1580 travel mm : 9.50,..9.90 Inlet press., bar: 1.50 2nd speed rpm : 1450 travel mm : 8.40...8.60 Test nozzle holder assembly : 0 681 343 009 3rd speed rpm : 550 : 3.40...4.00 travel mm 4th speed rpm : 300 Opening. : 1.20...1.60 pressure, bar : 172...175 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 014 Control-lever position Degree: 100 Outside diameter Speed rpm : 1480 x Wall thickness Rack travel in mm : 15.20...17.80 : 6.00X2.00X600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 1000 Speed per values ____ Aneroid pressure h: 700 : 104.0...106.0 Del.quantity 1000 : (103.0...109.0) cm3 : 3.50 1000 : (6.00) BEGINNING OF DELIVERY Test pressure, bar: 30...32 Spread : 3.10...3.20 Prestroke mm

RATED SPEED

: (3.05...3.25)

1st version Control lever

position degrees: 57...65

Testing:

1st rack travel in: 11.00

Speed rpm: 1440...1450 2nd rack travel in: 4.00

Speed rpm : 1590...1620

4th rack travel in: 1700

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 9...17

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.3

Testing:

Speed rpm : 100 Minimum rack trave: 7.90

Speed rpm : 300

Rack travel in mm : 6.30...6.40

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 550 Speed Rack travel in mm: 450

Contr.-rod trav.mm: 11.80...11.90

Measurement

Speed 1/min : 550

1st pressure hPa : -

Rack travel in m: 10.10...10.20 2nd pressure hPa : 200

Rack travel in m: 10.30...10.60 3rd pressure hPa : 700

Rack travel in m: 12.00...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 1900

Del.quantity cm3/ : 75.0...77.0

1000 s: (73.0...79.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

020

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

rpm : 1440...1450 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 140.0...160.0 1000 s: (137.0...163.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.30...6.40 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks Test sheet : MB 6,0 D 9 : 0-60-120-180-240-300 Phasing : 12.02.88 Edition Replaces : 03.04.87 Tolerance + - 0 : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING : 0 403 446 158 Combination no. rpm: 1300 1st speed Injection pump Pump designation : PES6MW100/720RS1131 Rack travel in mm : 12.10...12.20 EP type number : 0 413 406 123 Del.quantity cm3/: 10.05...10.25 Governor Governor design. : RQV300...1300MW50-1 : 0 420 083 089 Governer no. 100 s: (9.85...10.45) Spread cm3 : 0.3 Customer-spec. information Customer : DB 100 s: (0.6) Engine : OM 366 LA rpm : 300.0 2nd speed 1st version kW : 150.0 Rack travel in mm: 6.1...6.2 Del.quantity cm3/: 0.9...1.3 Rated speed : 2600 100 s: (0.65...1.55) cm3 : 0.3 TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 000 GUIDE SLEEVE TRAVEL 1st speed rpm : 1450 : 9.40...10.20 Inlet press., bar: 1.50 travel mm rpm : 1350 2nd speed : 8,50,...8,70 Test nozzle holder travel mm : 0 681 343 009 rpm : 450 assembly 3rd speed travel mm : 2.60...2.80 rpm : 300 4th speed Opening : 172...175 : 1.20...1.60 pressure, bar travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 015 Control-lever position Degree: -1 rpm : 1340 Outside diameter x Wall thickness Rack travel in mm : 15.20...17.80 : 6.00x1.50x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 1300 Set equal delivery quant. Speed Aneroid pressure h: 700 per values : 100.50...102.50 Del.quantity 1000 : (98.5...104.50) BEGINNING OF DELIVERY : 3.50 Test pressure, bar: 30...32 cm3 Spread 1000 : (6.00) Prestroke mm : 3.70...3.80

RATED SPEED

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

1st version Control lever position degrees: 48...56 Setting point: rpm : 1340 Speed Rack travel in mm: 16.5 Testing: 1st rack travel in: 11.10 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1440...1470 Speed 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 11...19 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.1 Testing: rpm : 100 Speed Minimum rack trave: 7.60 rpm : 300 Rack travel in mm : 6.10...6.20 CONSTANT REGULATION rpm : 350...550 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Rack travel in mm: 170 Contr.-rod trav.mm: 10.80...10.90 Measurement Speed 1/min : 500 1st pressure hPa : -Rack travel in m: 10.50...10.60 2nd pressure hPa : 225 Rack travel in m: 11.70...12.00 3rd pressure hPa : 700 Rack travel in m: 12.10...12.20 START CUT-OUT 1/min : 220 (250) Speed FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: 700 : 600 Speed Lbm Del.quantity cm3/: 85.0...89.0 1000 s: (83.0...91.0) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 54.0...56.0 1000 s: (52.0...58.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.10 rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 71.0...81.0 1000 s: (68.0...84.0)

LOW IDLE

rpm : 300 Speed Rack travel in mm : 6.10...6.20 Del.quantity cm3/: 9.00...13.0 1000 s: (6.5...15.5) cm3 : 3.50 1000 s: (5.50)

Spread

Remarks:

1st version

: 4.00...4.10 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : IHC 7,6 R 1 Edition : 19.02.88 Replaces : 11.85 Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Tolerance + - 0 Combination no. : 0 403 446 160 : 0.50 (0.75) BASIC SETTING Injection pump Pump designation : PES6MW100/320RS1112 EP type number : 0 413 406 108 rpm: 800 1st speed Governor Governor design. : RQV350...1200MW64 Rack travel in mm : 11.80...11.90 : 0 420 083 090 Governer no. Del.quantity cm3/: 10.8...11.0 Customer-spec. information Customer : NAVI-STAR 100 SI (10.6...11.2) cm3 : 0.3Engine : DTA-466C Spread : 157.0 100 s: (0.6) 1st version kW Rated speed : 2400 rpm : 350.0 2nd speed Rack travel in mm : 5.9...6.0 Del.quantity cm3/ : 1.8...2.2 TEST BENCH REQUIREMENTS Test oil 100 s: (1.5...2.4) inlet temp. °C : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar : 2.80 GUIDE SLEEVE TRAVEL Test nozzle holder rpm : 1350 1st speed : 1 688 901 016 : 8.80...9.20 assembly travel mm rpm : 1250 2nd speed : 7.90...8.10 travel mm Opening rpm : 500 : 207...210 3rd speed pressure, bar : 2.60...3.20 travel mm 4th speed rpm: 350 Orifice plate : 1.30...1.70 diameter mm : 0.5 travel mm GUIDE SLEEVE POSITION : 1 680 750 008 Control-lever position Test lines Degree: -1 rpm : 1380 Outside diameter Speed Rack travel in mm : 6.70...9.30 x Wall thickness : 6.00X2.00X600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 800 Set equal delivery quant. Speed Aneroid pressure h: 800 per values : 108.0...110.0 Del.quantity 1000 : (106.0...112.0) BEGINNING OF DELIVERY cm3 : 3.50Test pressure, bar: 30...32 Spread

1000 : (6.00)

RATED SPEED 1st version Control lever position degrees: 43...48 Testing: 1st rack travel in: 10.50 rpm : 1260...1280 Speed 2nd rack travel in: 4.00 Speed rpm : 1375...1385 4th rack travel in: 1450 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 7...15 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 5.9 Testing: rpm : 100 Speed Minimum rack trave: 9.00 Speed rpm : 350 Rack travel in mm : 5.90...6.00 CONSTANT REGULATION rpm : 370...450 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 800 Rack travel in m: 11.80...11.90 2nd speed rpm : 1200 Rack travel in m: 11.50...11.60 3rd speed rpm : 1050 Rack travel in m: 11.60...11.80 4th speed rpm : 1150 Rack travel in m: 11.50...11.60 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed Rack travel in mm: 130 Contr.-rod trav.mm: 11.00...11.10

Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 10.70...10.80 2nd pressure hPa : 240 Rack travel in m: 11.40...11.70 3rd pressure hPa : 800

Rack travel in m: 11.80...11.90

START CUT-OUT

1/min : 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800 rpm : 1200 Speed

Del.quantity cm3/: 107.0...111.0 1000 s: (105.0...113.0) Spread cm3 : 6.50

1000 s: (7.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 85.5...87.5 1000 s: (83.5...89.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.50 Speed rpm : 1260...1280

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 5.90...6.00 Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

: 3.00...3.10 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (2.95...3.15) Rack travel in mm : 9.00...12.00 Note remarks : 1-5- 3- 6- 2- 4 Firing order Test sheet : IHC 7,6 R 7 Edition : 19.02.88 : 09.03.87 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Tolerance + - 0 Combination no. : 0 403 446 161 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS 134 EP type number : 0 413 406 125 rpm : 800 1st speed Governor Governor design. : RQV350...1200MW46-1 Governer no. : 0 420 083 091 Rack travel in mm : 12.80...12.90 Del.quantity cm3/: 12.1...12.3 Customer-spec. information Customer : NAVI-STAR 100 s: (11.9...12.5) Engine : DTA-466C Spread cm3 : 0.31st version kW : 172.0 100 s: (0.6) : 2400 Rated speed rpm : 350.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 6.5...6.6 Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4) Test oil inlet temp. °C : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar : 2.80 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 1350 : 1 688 901 016 assembly : 8.80...9.20 travel mm 2nd speed rpm : 1250 travel mm : 7.90...8.10
3rd speed rpm : 500
travel mm : 2.60...3.20 Opening pressure, bar : 207...210 4th speed rpm : 350 Orifice plate diameter mm : 0.5 : 1.30...1.70 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 008 Control-lever position Degree: -1 Speed rpm: 1380 Rack travel in mm: 6.70...9.30 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 800 Speed Aneroid pressure h: 800 per values ____ Del.quantity : 121.5...123.5 1000 : (119.5...125.5) Spread cm3 : 3.50 BEGINNING OF DELIVERY Test pressure, bar: 30...32

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 45...50

Testing:

1st rack travel in: 11.80

Speed rpm : 1250...1260

2nd rack travel in: 4.00

Speed rpm : 1395...1405 4th rack travel in: 1460

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 9...17

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.5

Testing:

Speed rpm : 100

Minimum rack trave: 9.00 rpm : 350

Rack travel in mm : 6.50...6.60

CONSTANT REGULATION

Speed rpm : 370...500

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Rack travel in mm : 240

Contr.-rod trav.mm: 10.40...10.50

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.80...9.90

2nd pressure hPa : 520

Rack travel in m: 11.90...12.20

3rd pressure hPa : 800

Rack travel in m: 12.80...12.90

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed : 1200 rpm

Del.quantity cm3/: 124.5...128.5

1000 s: (122.5...130.5)

cm3 : 6.50 Spread

1000 s: (7.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 65.5...67.5

1000 s: (63.5...69.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

Speed rpm : 1250...1260

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.50...6.60

Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position,

first adjust latching.

In unlatched condition, do not

operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

: 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order Note remarks Test sheet : RVI 8,8 K 5 Phasing : 0-60-120-180-240-300 : 12.02.88 Edition Tolerance + - D : 0.50 (0.75) Replaces Test oil : ISO-4113 BASIC SETTING : 0 403 446 165 Combination no. rpm: 1300 1st speed Injection pump Pump designation : PES6MW100/320RS1016 Del.quantity cm3/: 8.9...9.1 EP type number : 0 413 406 010 100 s: (8.7...9.3) Governor Governor design. : RQV300...1300MW25-5 Governer no. : 0 420 083 095 Spread cm3 : 0.3Customer-spec. information 100 s: (0.6) Customer : RVI rpm : 300.0 2nd speed Rack travel in mm : 5.3...5.4 Del.quantity cm3/ : 0.9...1.3 : MIDRO6.02-12 F Engine 100 s: (0.7...1.6) : 125.0 1st version kW cm3 : 0.3 : 2600 Rated speed Spread 100 s: (0.5) TEST BENCH REQUIREMENTS (B) Setting of injection pump Test oil with governor inlet temp. OC : 38...42 GUIDE SLEEVE TRAVEL rpm : 1475 Overflow valve 1st speed : 8.40...9.20 : 1 417 413 000 travel mm 2nd speed rpm : 1350 : 7.60...7.80 Inlet press., bar: 1.50 travel mm rpm : 500 3rd speed Test nozzle holder : 2.70...3.10 travel mm rpm : 300 : 0 681 343 009 assembly 4th speed : 1.40...2.20 travel mm Opening : 173...176 GUIDE SLEEVE POSITION pressure, bar Control-lever position Degree: -1 rpm : 1300 : 1 680 750 014 Test lines Rack travel in mm : 15.20...17.80 Outside diameter FULL LOAD DELIV. AT FULL LOAD STOP x Wall thickness : 6.00x2.00x600 x Length mm 1st version rpm : 1300 (A) Injection pump setting values Speed Aneroid pressure h: 665 Insp. values in parentheses : 89.5...91.5 Set equal delivery quant. Del quantity 1000 : (87.5...93.5) per values ___ cm3 : 3.50 Spread 1000 : (6.00) BEGINNING OF DELIVERY Test pressure, bar: 30...32 RATED SPEED : 3.00...3.10 Prestroke mm : (2.95...3.15) 1st version Rack travel in mm : 9.00...12.00

E01

Control lever position degrees: 60...68 Testing: 1st rack travel in: 10.10 rpm : 1370...1380 Speed 2nd rack travel in: 3.90 Speed rpm : 1495...1525 4th rack travel in: 1650 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 9...17 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 5.9
Speed rpm: 300
Rack travel in mm: 5.90...5.80 : 200 Speed rpm Maximum rack trave: 3.60 CONSTANT REGULATION rpm : 340...600 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Rack travel in mm: 665 Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 9.90...9.80 2nd pressure hPa : 200 Rack travel in m: 10.30...10.20 3rd pressure hPa : 230 Rack travel in m: 10.90...10.70 START CUT-OUT 1/min : 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 665 Speed rpm : 900 Del.quantity cm3/ : 86.5...90.5

1000 s: (84.5...92.5)

cm3 : 5.00

1000 s: (7.0)

rpm : 500

Del.quantity cm3/: 56.0...58.0
1000 s: (54.0...60.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.10

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 95.0...105.0 1000 s: (92.0...108.0)

rpm : 1370...1380

LOW IDLE

Speed

Remarks:

Start-of-delivery mark is at $8^{\rm o}$ after start of delivery.

£02

Spread

Speed

Aneroid pressure h: -

: 4.00...4.10 : (3.95...4.15) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : IHC 7,6 R11 : 19.02.88 Edition Replaces : ISO-4113 : 0-60-120-180-240-300 Test oil Phasing Tolerance + - 0 Combination no. : 0 403 446 174 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1140 rpm: 800 EP type number : 0 413 406 135 1st speed Governor Governor design. : RQV350...1200MW46-7 Rack travel in mm : 11.40...11.50 : 0 420 083 107 Governer no. Del.quantity cm3/ : 9.1...9.3 Customer-spec. information : NAVI-STAR 100 s: (8.9...9.5) Customer Engine cm3 : 0.3: DT-466 C Spread : 134.0 100 s: (0.6) 1st version kW : 2400 Rated speed rpm : 350.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 6.6...6.7 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Test oil inlet temp. OC : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar: 2.80 GUIDE SLEEVE TRAVEL rpm : 1250 Test nozzle holder 1st speed : 1 688 901 016 assembly travel mm : 7.80...8.00 rpm : 1340 2nd speed : 8.80...9.20 Opening travel mm 3rd speed rpm : 500 : 207...210 pressure, bar travel mm : 2.60...3.20 4th speed rpm : 350 Orifice plate : 1.30...1.80 : 0.5 travel mm diameter mm GUIDE SLEEVE POSITION : 1 680 750 008 Control-lever position Test lines Degree: -1 Outside diameter Speed rpm : 1380 Rack travel in mm : 6.60...9.40 x Wall thickness : 6.00X2.00X600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 800 Speed Aneroid pressure h: 700 per values : 91.5...93.5 Del quantity 1000 : (89.5...95.5) cm3 : 3.50 BEGINNING OF DELIVERY Test pressure, bar: 30...32 Spread 1000 : (6.90)

RATED SPEED 1st version Control lever position degrees: 45...50 Testing: 1st rack travel in: 10.40 rpm : 1240...1260 Speed 2nd rack travel in: 4.00 rpm : 1360...1370 Speed 4th rack travel in: 1450 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 10...18 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6.6 Testing: Speed rpm : 100 Minimum rack trave: 9.00 rpm : 350 Speed Rack travel in mm : 6.60...6.70 CONSTANT REGULATION rpm : 370...500 Speed Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed Rack travel in mm: 170 Contr.-rod trav.mm: 10.10...10.20 Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 10.10...10.20 2nd pressure hPa : 310 Rack travel in m: 10.30...10.40 3rd pressure hPa : 700 Rack travel in m: 10.70...11.00 START CUT-OUT Speed 1/min : 280 (290) FUEL DELIVERY CHARACTERISTICS

1st version

E04

Aneroid pressure h: 700

: 1200 Speed Lbw Del.quantity cm3/: 94.0...98.0 1000 s: (92.0...100.0) cm3 : 6.50Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 66.0...68.0 1000 s: (64.0...70.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.40 rpm : 1240...1260 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 350 Speed Rack travel in mm : 6.60...6.70 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50) Remarks: Perform pump setting only with IH hose with restriction of 1.2 mm diameter. Before checking sleeve position, first adjust latching. In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff. E05

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order : IHC 7,6 R12 : 19.02.88 Test sheet Edition : 17.12.86 Replaces : 0-60-120-180-240-300 Test oil : ISO-4113 Phasing Tolerance + - 0 Combination no. : 0 403 446 176 : 0.50 (0.75) BASIC SETTING Injection pump Pump designation : PES6MW100/320RS1140 EP type number rpm: 800 : 0 413 406 135 1st speed Governor Rack travel in mm : 11.00...11.10 Governor design.: RQV350...1200MW72 Governer no. : 0 420 083 109 Del.quantity cm3/: 8.6...8.8 Customer-spec. information 100 s: (8.4...9.0) Customer : NAVI-STAR : DT-466 C cm3 : 0.3Spread Engine 100 s: (0.6) 1st version kW : 123.0 : 2400 Rated speed rpm : 350.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 6.4...6.5 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Test oil inlet temp. OC : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar: 2.80 GUIDE SLEEVE TRAVEL 1st speed rpm : 1250 Test nozzle holder : 1 688 901 016 : 7.80...8.00 assembly travel mm 2nd speed rpm : 1340 : 8.80...9.20 travel mm Opening. 3rd speed rpm : 500 pressure, bar : 207...210 : 2.60...3.20 travel mm 4th speed rpm : 350 Orifice plate diameter mm : 0.5 travel mm : 1.30...1.80 GUIDE SLEEVE POSITION Control-lever position Test lines : 1 680 750 008 Degree: -1 Outside diameter Speed rpm : 1380 x Wall thickness Rack travel in mm : 6.60...9.40 x Length mm : 6.00X2.00X600 FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 800 Speed : 86.0...88.0 per values ____ Del.quantity 1000 : (84.0...90.0) BEGINNING OF DELIVERY cm3 : 3.50Spread 1000 : (6.00) Test pressure, bar: 30...32

RATED SPEED

1st version Control lever

position degrees: 46...51

Testing:

1st rack travel in: 10.00

rpm : 1240...1260 Speed

2nd rack travel in: 4.00

rpm : 1350...1360 Speed

4th rack travel in: 1450

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

rpm : 350°

Rack travel in mm: 6.4

Testing:

: 100 Speed rpm

Minimum rack trave: 9.00

Speed rpm: 350 Rack travel in mm: 6.40...6.50

CONSTANT REGULATION

Speed rpm : 370...450

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 1200 rpm

Del.quantity cm3/: 89.0...93.0

1000 s: (87.0...95.0)

cm3 : 6.50Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

rpm : 1240...1260 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

E07

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 6.40...6.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before

shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.00...3.10 Prestroke mm : (2.95...3.15) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : IHC 7,6 R13 : 19.02.88 Edition Replaces : 0-60-120-180-240-300 : ISO-4113 Test oil Phasing Tolerance + - 0 Combination no. : 0 403 446 181 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1134 EP type number : 0 413 406 125 rpm: 850 1st speed Governor Governor design.: RQV350...1200MW46-9 Rack travel in mm : 11.00...11.10 : 0 420 083 116 Governer no. Del.quantity cm3/: 8.2...8.4 Customer-spec. information : NAVI-STAR 100 s: (8.0...8.6) Customer cm3 : 0.3 Engine : DT-466 C Spread 100 s: (0.6) : 122.0 1st version kW : 2400 Rated speed rpm : 350.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 6.6...6.7 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Test oil inlet temp. °C : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar : 2.80 GUIDE SLEEVE TRAVEL Test nozzle holder rpm : 1250 1st speed : 1 688 901 016 travel mm : 7.80...8.00 assembly 2nd speed rpm : 1340 travel mm : 8.80...9.20
3rd speed rpm : 700 Opening. pressure, bar : 207...210 : 4.20...4.80 travel mm 4th speed rpm : 350 Orifice plate : 1.30...1.70 diameter mm : 0.5 travel mm GUIDE SLEEVE POSITION : 1 680 750 008 Test lines Control-lever position Degree: -1 rpm : 1355 Outside diameter Speed Rack travel in mm : 8.00...0.00 x Wall thickness : 6.00X2.00X600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 850 Set equal delivery quant. Speed Aneroid pressure h: 700 per values : 82.0...84.0 Del.quantity 1000 : (80.0...86.0) BEGINNING OF DELIVERY

Spread

cm3 : 3.50 1000 : (6.00)

Test pressure, bar: 30...32

Speed rpm : 1200 Del.quantity cm3/ : 86.0...90.0 RATED SPEED 1000 s: (84.0...92.1) cm3 : 6.50 1st version Spread Control lever 1000 s: (7.0) position degrees: 46...51 Aneroid pressure h: rpm_ : 500 Speed Del.quantity cm3/: 58.5...60.5 1000 s: (56.5...62.5) Testing: 1st rack travel in: 10.00 Speed rpm : 1265...1285 2nd rack travel in: 4.00 Speed rpm : 1365...1375 BREAKAWAY 4th rack travel in: 1500 rpm : 0.00...1.00 Speed 1st version 1mm rack travel less than LOW IDLE 1 Control lever full load rack tr: 10.00 position degrees: 12...20 Setting point w/out bumper spring rpm : 1265...1285 Speed : 350 rpm STARTING FUEL DELIVERY Rack travel in mm: 6.6 rpm : 100 Speed Testing: Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0) Rack travel in mm: 19.00...21.00 Speed rpm : 100 Minimum rack trave: 9.00 Speed rpm: 350 Rack travel in mm : 6.60...6.70 LOW IDLE CONSTANT REGULATION Speed rpm : 360...540 Speed rpm : 350 Rack travel in mm : 6.60...6.70 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50) Aneroid/Altitude Compensator Test 1st version Setting Remarks: rpm : 500 Speed Rack travel in mm : 210 Perform pump setting only with IH hose with restriction of 1.2 mm diameter. Contr.-rod trav.mm: 10.30...10.40 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 10.00...10.10 2nd pressure hPa : 300 Before checking sleeve position, Rack travel in m: 10.60...10.90 3rd pressure hPa : 700 first adjust latching. Rack travel in m: 11.00...11.10 START CUT-OUT In unlatched condition, do not 1/min : 220 (210) operate greater than n = 500 1/min Speed FUEL DELIVERY CHARACTERISTICS Set low idle at stop screw. 1st version Aneroid pressure h: 700

E09

Set shutoff stop 1.5...2.0 mm before shutoff.

: 4.00...4.10 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : IHC 7,6 R14 : 19.02.88 Edition : 31.07.87 Replaces : ISO-4113 : 0-60-120-180-240-300 Test oil Phasing Tolerance + - 0 Combination no. : 0 403 446 183 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1112 EP type number : 0 413 406 108 rpm: 900 1st speed Governor Governor design. : RQV350...1300MW46-11 Rack travel in mm : 11.00...11.10 Governer no. : 0 420 083 120 Del.quantity cm3/ : 10.6...10.8 Customer-spec. information Customer : NAVISTAR 100 s: (10.4...11.0) : DT-466 C Engine Spread cm3 : 0.3: 154.5 100 s: (0.6) 1st version kW Rated speed : 2600 2nd speed rpm: 350.0 Rack travel in mm: 5.7...5.8 Del.quantity cm3/: 1.6...2.0 TEST BENCH REQUIREMENTS 100 s: (1.3...2.2) Test oil inlet temp. OC : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar : 2.80 GUIDE SLEEVE TRAVEL Test nozzle holder rpm : 1350 1st speed : 1 688 901 016 : 8.30...8.50 travel mm assembly rpm : 1460 2nd speed Opening travel mm : 9.10...9.50 d speed rpm : 550 travel mm : 3.10...3.70 pressure, bar : 207...210 3rd speed rpm : 350 Orifice plate 4th speed diameter mm : 0.5 travel mm : 1.30...1.70 GUIDE SLEEVE POSITION Control-lever position Test lines : 1 680 750 008 Degree: -1 Speed rpm: 1380 Rack travel in mm: 6.60...9.40 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 900 Set equal delivery quant. Speed Aneroid pressure h: 700 per values : 106.5...108.5 1000 : (104.5...110.5) cm3 : 3.50 Del.quantity BEGINNING OF DELIVERY Test pressure, bar: 30...32 Spread

1000 : (6.00)

RATED SPEED 1st version Control lever position degrees: 45...50 Testing: 1st rack travel in: 10.00 rpm : 1345...1365 Speed 2nd rack travel in: 4.00 rpm : 1455...1465 Speed 4th rack travel in: 1500 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...18 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 5.7 Testing: Speed rpm : 100 Minimum rack trave: 9.00 rpm : 350 Rack travel in mm : 5.70...5.80 CONSTANT REGULATION rpm : 300...450 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Rack travel in mm: 170 Contr.-rod trav.mm: 10.20...10.30 Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 9.90...10.00 2nd pressure hPa : 315 Rack travel in m: 10.60...10.90 3rd pressure hPa : 700 Rack travel in m: 11.00...11.10 START CUT-OUT Speed 1/min : 220 (210) FUEL DELIVERY CHARACTERISTICS

1st version

£12

Aneroid pressure h: 700

rpm : 1300 Speed Del.quantity cm3/: 108.0...112.0 1000 s: (106.0...114.0) cm3 : 6.50 Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 81.5...83.5 1000 s: (79.5...85.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.00 Speed rpm : 1345...1365 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 140.0...180.0 1000 s: (137.0...183.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 350 Speed Rack travel in mm : 5.70...5.80 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3: 3.50 1000 s: (5.50) Remarks: : Perform pump setting only with IH hose with restriction of 1.2 mm diameter. Before checking sleeve position, first adjust latching. In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : IHC 7,6 R15 Test sheet Edition : 19.02.88 : 31.07.87 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 185 Injection pump Pump designation : PES6MW100/320RS1140 EP type number : 0 413 406 135 Governor Governor design. : RQV350...1200MW72-1 : 0 420 083 122 Governer no. Customer-spec. information Customer : NAVISTAR Engine : DT-466 C : 134.0 1st version kW : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 037 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 016 assembly Opening : 207...210 pressure, bar Orifice plate : 0.5 diameter mm : 1 680 750 008 Test lines

Outside diameter

x Wall thickness : 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32 Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 800

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 9.1...9.3

100 s: (8.9...9.5)

cm3 : 0.3 Spread

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm : 6.6...6.7 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1250 : 7.80...8.00 1st speed travel mm

2nd speed rpm : 1340

: 8.80...9.20 travel mm 3rd speed rpm : 500

travel mm : 2.60...3.20

4th speed rpm : 350

: 1.30...1.80 travel mm

GUIDE SLEEVE POSITION Control-lever position Degree: -1

rpm : 1380 Speed

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 800 Speed

: 91.5...93.5 Del.quantity 1000 : (89.5...95.5)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...47

Testing:

1st rack travel in: 10.40

rpm : 1250...1270 Speed

2nd rack travel in: 4.00

Speed rpm : 1360...1370

4th rack travel in: 1450

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 10...18

Setting point w/out bumper spring

rpm : 350

Rack travel in mm: 6.6

Testing:

rpm : 100 Speed

Minimum rack trave: 9.00

Speed rpm : 350 Rack travel in mm : 6.60...6.70

CONSTANT REGULATION

rpm : 370...500 Speed

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

: 1200 Speed rpm

Del.quantity cm3/: 94.0...98.0

1000 s: (92.0...100.0)

cm3 : 6.50 Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 1250...1270

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.0...180.0

1000 s: (137.0...183.0) Rack travel in mm : 19.00...21.00

E15

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 6.60...6.70

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before

shutoff.

: 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order Note remarks Test sheet : MB 6,0 D 21 : 0-60-120-180-240-300 Phasing : 19.02.88 Edition Tolerance + - 0 Replaces : 10.08.87 : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 446 187 1st speed rpm : 1300 Injection pump Rack travel in mm : 11.20...11.30 Pump designation : PES6MW100/720RS1129 EP type number : 0 413 406 121 Del.quantity cm3/: 9.4...9.6 Governor Governor design.: RQV300...1300MW50-2 : 0 420 083 124 100 s: (9.2...9.8) Governer no. Customer-spec. information Spread cm3 : 0.3Customer 100 s: (0.6) : OM 366 LA Engine rpm : 300.0 2nd speed Rack travel in mm: 5.5...5.6 : 150.0 1st version kW Del.quantity cm3/: 1.0...1.2 Rated speed : 2600 100 s: (0.8...1.6) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. OC : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 000 GUIDE SLEEVE TRAVEL 1st speed rpm : 1340 : 8.60...8.80 Inlet press., bar: 1.50 travel mm rpm : 1430 2nd speed : 9.30...9.70 Test nozzie hoider travel mm : 0 681 343 009 3rd speed rpm : 300 assembly : 1.20...1.60 travel mm rpm : 700 4th speed Opening : 3.80...4.40 pressure, bar travel mm : 172...175 GUIDE SLEEVE POSITION Test lines : 1 680 750 008 Control-lever position Degree: -1 rpm : 1340 Outside diameter Speed x Wall thickness Rack travel in mm : 15.20...17.80 : 6.00x2.00x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Speed rpm : 1300 per values ___ Aneroid pressure h: 700 Del.quantity : 94.0...96.0 1000 : (92.0...98.0) BEGINNING OF DELIVERY cm3 : 3.50 1000 : (6.00) Test pressure, bar: 30...32 Spread : 3.70...3.80 Prestroke mm RATED SPEED : (3,65...3.85) Rack travel in mm : 9.00...12.00

E16

1st version Control lever position degrees: 51...59 Testing: 1st račk travel in: 10.20 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1430...1460 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 15...23 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.5 Testing: : 100 Speed rpm Minimum rack trave: 7.50 rpm : 300 Speed Rack travel in mm : 5.50...5.60 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 CONSTANT REGULATION rpm : 320...530 Speed Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed Rack travel in mm: 400 Contr.-rod trav.mm: 9.90...10.00 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.50...9.60 2nd pressure hPa : 500 Rack travel in m: 10.80...11.10 3rd pressure hPa : 700 Rack travel in m: 11.20...11.30 START CUT-OUT 1/min : 220 (230) Speed FUEL DELIVERY CHARACTERISTICS

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.20 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 90.0...100.0 1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.50...5.60 Del.quantity cm3/ : 10.0...12.0 1000 s: (8.0...16.0)

Spread cm3 : 3.50 1000 s: (5.00)

Remarks:

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1st version

Aneroid pressure h: 700

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks Test sheet : MB 6,0 D 28 : 0-60-120-180-240-300 Phasing Edition : 19.02.88 Tolerance + - 0 : 10.04.87 : 0.50 (0.75) Replaces : ISO-4113 Test oil BASIC SETTING : 0 403 446 188 Combination no. rpm : 1300 1st speed Injection pump Pump designation : PES6MW100/720RS1144 Rack travel in mm : 10.10...10.20 EP type number : 0 413 406 138 Del.quantity cm3/ : 7.0...7.2 Governor Governor design.: RQV300...1300MW48-4 : 0 420 083 126 100 s: (6.8...7.4) Governer no. Customer-spec. information Spread cm3 : 0.3Customer ; DB 100 s: (0.6) : 0M366A Engine rpm : 300.0 2nd speed Rack travel in mm: 7.3...7.4 1st version kW : 100.0 Del.quantity cm3/: 1.0...1.4 : 2600 Rated speed 100 s: (0.9...1.5) cm3 : 0.3 TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. OC : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 000 GUIDE SLEEVE TRAVEL 1st speed rpm : 1340 : 8.50...8.70 Inlet press., bar: 1.50 travel mm rpm : 1450 2nd speed Test nozzle holder : 9.30...9.70 travel mm : 0 681 343 009 3rd speed rpm : 500 assembly travel mm : 2.70...3.30 : 300 Opening 4th speed rpm : 1.20...1.70 pressure, bar : 172...175 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 008 Control-lever position Degree: -1 rpm : 1350 Outside diameter x Wall thickness Rack travel in mm : 15.20...17.80 x Length mm : 6.00X2.00X600 FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 1300 Speed : 70.0...72.0 per values ____ Del.quantity 1000 : (68.0...74.0) : 3.50 BEGINNING OF DELIVERY cm3 Spread 1000 : (6.00) Test pressure, bar: 30...32

RATED SPEED

1st version

Prestroke mm

: 3.70...3.80

Rack travel in mm : 19.00...21.00

: (3.65...3.85)

Control lever position degrees: 50...58 Testing: 1st račk travel in: 9.10 Speed rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1390...1420 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring rpm : 300° Rack travel in mm: 7.3 Testing: Speed rpm : 100 Minimum rack trave: 9.30 Speed rpm: 300 Rack travel in mm : 7.30...7.40 CONSTANT REGULATION rpm : 330...500 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 10.10...10.20 2nd speed rpm : 750 Rack travel in m: 11.10...11.20 3rd speed rpm : 600 Rack travel in m: 11.10...11.20 4th speed rpm : 900 Rack travel in m: 10.70...10.90 START CUT-OUT 1/min : 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/ : 71.5...74.5 1000 s: (69.0...77.0) cm3 : 5.00Spread 1000 s: (7.0) BREAKAWAY

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 80.0...90.0
1000 s: (77.0...93.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300 Rack travel in mm : 7.30...7.40 Del.quantity cm3/: 10.0...14.0 1000 s: (9.0...15.0) Spread cm3: 3.50

1000 s: (5.00)

Remarks:

E19

Speed

1st version

1mm rack travel less than

full load rack tr: 9.10

rpm : 1340...1350

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks : 1-5- 3- 6- 2- 4 Firing order : IHC 7,6 R22 : 19.02.88 Test sheet Edition : 10.08.87 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 403 446 192 Tolerance + - 0 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1112 : 0 413 406 108 EP type number rpm: 900 1st speed Governor Governor design. : RQV350...1300MW72-2 Rack travel in mm : 10.00...10.10 : 0 420 083 141 Governer no. Del.quantity cm3/: 8.6...8.8 Customer-spec. information Customer 100 s: (8.4...9.0) : NAVISTAR Engine : DT-466 Spread cm3 : 0.31st version kW : 136.0 100 s: (0.6) Rated speed : 2600 rpm : 350.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 6.4...6.5 Del.quantity cm3/: 1.9...2.3 Test oil 100 s: (1.6...2.5) inlet temp. OC : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar: 2.80 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 1350 : 1 688 901 016 : 8.30...8.50 assembly travel mm 2nd speed rpm : 1460 : 9.10...9.50 Opening travel mm 3rd speed rpm : 550 pressure, bar : 207...210 : 3.10...3.70 travel mm 4th speed rpm : 350 Orifice plate : 1.30...1.70 diameter mm : 0.5 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 008 Control-lever position Degree: -1 rpm : 1510 Outside diameter Speed x Wall thickness Rack travel in mm : 6.60...9.40 : 6.00X2.00X600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 900 Speed Del.quantity : 86.0...88.0 1000 : (84.0...90.0) per values

cm3 : 3.50

1000 : (6.00)

Spread

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

RATED SPEED

1st version

Control lever position degrees: 45...50

Testing:

1st rack travel in: 9.00

rpm : 1360...1380 Speed

2nd rack travel in: 4.00

rpm : 1460...1470 Speed

4th rack travel in: 1550

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 10...18

Setting point w/out bumper spring

rpm : 350

Rack travel in mm: 6.4

Testing:

rpm : 100 Speed

Minimum rack trave: 9.00

rpm

Rack travel in mm : 6.40...6.50

CONSTANT REGULATION

rpm : 300...450 Speed

START CUT-OUT

Speed 1/min: 220 (280)

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 1300 Speed

Del.quantity cm3/: 88.0...92.0 1000 s: (86.0...94.0)

cm3 : 5.00Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.00

Speed rpm : 1360...1380

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.40...6.50

Del.quantity cm3/: 19.0...23.0

1000 s: (16.5...25.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position,

first adjust latching.

In unlatched condition, do not operate oreater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before

shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : IHC 7,6 S : 19.02.88 Edition : 10.08.87 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 : 0 403 446 193 Tolerance + - 0 Combination no. : 0.50 (0.75) BASIC SETTING Injection pump Pump designation : PES6MW100/320RS1159 rpm: 900 EP type number : 0 413 406 146 1st speed Governor Rack travel in mm: 10.60...10.70 Governor design. : RQV350...1300MW72-3 : 0 420 083 142 Governer no. Del.quantity cm3/: 9.0...9.2 Customer-spec. information 100 s: (8.8...9.4) Customer : NAVISTAR Engine : DT-466 Spread cm3 : 0.31st version kW : 136.0 100 s: (0.6) Rated speed : 2600 rpm : 350.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 6.4...6.5 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Test oil inlet temp. OC : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar : 2.80 GUIDE SLEEVE TRAVEL rpm : 1250 Test nozzle holder 1st speed : 1 688 901 016 : 7.80...8.00 travel mm assembly rpm : 1340 2nd speed : 8.80...9.20 Opening travel mm 3rd speed rpm: 500 travel mm: 2.60...3.20 : 207...210 pressure, bar Orifice plate 4th speed rpm : 350 : 1.30...1.80 diameter mm : 0.5 travel mm GUIDE SLEEVE POSITION Control-lever position Test lines : 1 680 750 008 Degree: -1 Speed rpm: 1380 Rack travel in mm: 6.70...9.30 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 900 Set equal delivery quant. Speed : 90.0...92.0 per values ____ Deliquantity 1000 : (88.0...94.0) : 3.50 BEGINNING OF DELIVERY Spread cm3 1000 : (6.00)

Test pressure, bar: 30...32

RATED SPEED

1st version Control lever

position degrees: 46...51

Testing:

1st rack travel in: 9.60 rpm : 1370...1390 Speed

2nd rack travel in: 4.00

rpm : 1475...1485

4th rack travel in: 1450 rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 11...19

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.4

Testing:

rpm : 100 Speed Minimum rack trave: 9.00 rpm

Rack travel in mm : 6.40...6.50

CONSTANT REGULATION

rpm : 370...500 Speed

START CUT-OUT

1/min : 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1200 Del.quantity cm3/ : 94.0...98.0 1000 s: (92.0...100.0)

cm3 : 6.50Spread

1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.60

Speed rpm : 1370...1390

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.40...6.50

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3: 3.50 1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

: 4.00...4.10 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order : IHC 7,6 R20 : 19.02.88 : 31.07.87 Test sheet Edition Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Tolerance + - D Combination no. : 0 403 446 194 : 0.50 (0.75) BASIC SETTING Injection pump Pump designation : PES6MW100/320RS1112 EP type number : 0 413 406 108 1st speed rpm: 900 Governor Governor design. : RQV350...1300MW46-12 Rack travel in mm : 10.80...10.90 Governer no. : 0 420 083 143 Del.quantity cm3/: 10.3...10.5 Customer-spec. information : NAVISTAR 100 s: (10.1...10.7) Customer Engine : DT~466 Spread cm3 : 0.31st version kW : 154.5 100 s: (0.6) Rated speed : 2600 2nd speed rpm: 350.0
Rack travel in mm: 5.5...5.6 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Test oil inlet temp. °C : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar: 2.80 GUIDE SLEEVE TRAVEL rpm : 1350 Test nozzle holder 1st speed : 1 688 901 016 : 8.30...8.50 travel mm assembly rpm : 1460 2nd speed travel mm : 9.10...9.50 Opening 3rd speed rpm : 550 travel mm : 3.10...3.70 4th speed rpm : 350 : 207...210 pressure, bar Orifice plate : 1.30...1.70 diameter mm : 0.5 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 008 Control-lever position Degree: -1 Speed rpm: 1510 Rack travel in mm: 6.60...9.20 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Speed rpm : 900 per values ____ Aneroid pressure h: 800 Del.quantity : 103.0...105.0 1000 : (101.0...107.0) Spread cm3 : 3.50 BEGINNING OF DELIVERY

1000 : (6.00)

Test pressure, bar: 30...32

RATED SPEED 1st version Control lever position degrees: 44...49 Testing: 1st rack travel in: 9.80 rpm : 1365...1385 beea 2nd rack travel in: 4.00 rpm : 1470...1480 Speed 4th rack travel in: 1500 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 9...17 Setting point w/out bumper spring rpm : 350° Rack travel in mm : 5.5 Testing: Speed rpm : 100 Minimum rack trave: 7.30 rpm : 350 Rack travel in mm : 5.50...5.60 CONSTANT REGULATION rpm : 360...450 Speed Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed Rack travel in mm: 170 Contr.-rod trav.mm: 10.40...10.50 Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 10.10...10.20 2nd pressure hPa : 230 Rack travel in m: 10.60...10.90 3rd pressure hPa : 800 Rack travel in m: 10.80...10.90 START CUT-OUT Speed 1/min : 280 (290) FUEL DELIVERY CHARACTERISTICS 1st version

Speed rpm : 1300 Del.quantity cm3/: 105.0...109.0 1000 s: (103.0...111.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 87.0...89.0 1000 s: (85.0...91.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.80 rpm : 1365...1385 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 140.0...180.0 1000 s: (137.0...183.0) Rack travel in mm: 19.00...21.00 LOW IDLE Speed rpm: 350
Rack travel in mm: 5.50...5.60
Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: : Perform pump setting only with IH hose with restriction of 1.2 mm diameter. Before checking sleeve position, first adjust latching. In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Aneroid pressure h: 800

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : IHC 7,6 R21 Test sheet : 19.02.88 Edition : 02.11.87 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 403 446 195 Tolerance + - 0 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1112 EP type number : 0 413 406 108 rpm: 800 1st speed Governor Governor design. : RQV350...1200MW46-13 Rack travel in mm: 12.30...12.40 Governer no. : 0 420 083 144 Del.quantity cm3/: 11.7...11.9 Customer-spec. information 100 s: (11.5...12.1) Customer : NAVISTAR cm3 : 0.3: DTA-466 Engine Spread 1st version kW : 180.0 100 s: (0.6) : 2400 Rated speed rpm : 350.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 6.3...6.4 Del.quantity cm3/: 1.9...2.3 100 s: (1.6...2.5) cm3 : 0.3 Test oil inlet temp. OC : 38...42 Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar : 2.80 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 1350 : 1 688 901 016 travel mm : 8.30...8.50 assembly rpm : 1460 2nd speed : 9.10...9.50 Opening travel mm rpm : 550 pressure, bar : 207...210 3rd speed : 3.10...3.70 rpm : 350 travel mm Orifice plate 4th speed : 1.30...1.70 diameter mm : 0.5 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 908 Control-lever position Degree: -1 Speed rpm: 1380 Rack travel in mm: 6.70...9.30 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 800 Set equal delivery quant. Speed per values ____ Aneroid pressure h: 800 Del.quantity : 117.5...119.5 1000 : (115.5...121.5) BEGINNING OF DELIVERY cm3 : 3.50

Spread

1000 : (6.00)

Test pressure, bar: 30...32

RATED SPEED 1st version Control lever position degrees: 43...48 Testing: 1st rack travel in: 11.30 Speed rpm : 1265...1285 2nd rack travel in: 4.00 rpm : 1395...1405 4th rack travel in: 1500 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 12...20 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm: 6.3 Testing: rpm : 100 Speed Minimum rack trave: 9.00 rpm : 350 Rack travel in mm : 6.30...6.40 CONSTANT REGULATION rpm : 360...450 Speed Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed Rack travel in mm: 190 Contr.-rod trav.mm: 11.20...11.30 Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 10.60...10.70 2nd pressure hPa : 360 Rack travel in m: 11.90...12.20 3rd pressure hPa : 800

Rack travel in m: 12.30...12.40 START CUT-OUT

1/min : 280 (290) Speed FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 800 Speed rpm : 1200 Del.quantity cm3/ : 120.0...124.0 1000 s: (118.0...126.0) Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 86.0...88.0 1000 s: (84.0...90.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.30 Speed rpm : 1265...1285

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0) Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350 Speed Rack travel in mm : 6.30...6.40 Del.quantity cm3/: 19.0...23.0 1000 s: (16.5...25.5) cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

: 4.00...4.10 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1-5-3-6-2-4 : IHC 7,6 R23 : 19.02.88 Test sheet Edition Replaces : 10.08.87 Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Tolerance + - 0 Combination no. : 0 403 446 196 : 0.50 (0.75) BASIC SETTING Injection pump Pump designation : PES6MW100/320RS1112 rpm: 800 EP type number : 0 413 406 108 1st speed Governor Governor design. : RQV350...1200MW46-14 Rack travel in mm : 11.40...11.50 Governer no. : 0 420 083 145 Del.quantity cm3/: 10.4...10.6 Customer-spec. information 100 s: (10.2...10.8) Customer : NAVISTAR cm3 : 0.3Engine : DTA-466 Spread 1st version kW : 169.0 100 s: (0.6) Rated speed : 2400 rpm : 350.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 6.2...6.3 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Test oil cm3 : 0.3 inlet temp. °C : 38...42 Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar : 2.80 GUIDE SLEEVE TRAVEL rpm : 1350 Test nozzle holder 1st speed : 1 688 901 016 : 8.30...8.50 assembly travel mm 2nd speed rpm: 1460 : 9.10...9.50 travel mm Opening 3rd speed rpm : 550 : 207...210 pressure, bar : 3.10...3.70 travel mm rpm : 350 Orifice plate 4th speed : 1.30...1.70 diameter mm : 0.5 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 008 Control-lever position Degree: -1 rpm : 1380 Outside diameter Speed x Wall thickness Rack travel in mm : 6.70...9.30 : 6.00x2.00x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 800 Set equal delivery quant. Speed per values ____ Aneroid pressure h: 800 : 104.0...106.0 Del.quantity 1000 : (102.0...108.0) BEGINNING OF DELIVERY cm3 : 3.50 Test pressure, bar: 30...32 Spread

1000 : (6.00)

RATED SPEED 1st version Control lever position degrees: 44...49 Testing: 1st rack travel in: 10.40 rpm : 1250...1270 Speed 2nd rack travel in: 4.00 rpm : 1390...1400 Speed 4th rack travel in: 1460 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever Testing: Speed ?

position degrees: 12...20 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6.2

rpm : 100 Minimum rack trave: 9.00 Speed rpm: 350 Rack travel in mm : 6.20...6.30

CONSTANT REGULATION rpm : 360...450 Speed

Aneroid/Altitude Compensator Test

1st version Setting rpm : 500 Rack travel in mm: 180

Contr.-rod trav.mm: 10.80...10.90

Measurement 1/min : 500 Speed

1st pressure hPa : -Rack travel in m: 10.50...10.60 2nd pressure hPa : 270 Rack travel in m: 11.10...11.20

3rd pressure hPa : 800

Rack travel in m: 11.40...11.50

START CUT-OUT

1/min : 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 800

Speed rpm : 1200 Del.quantity cm3/ : 107.0...111.0 1000 s: (105.0...113.0)

cm3 : 6.50Spread

1000 s: (7.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 84.0...86.0 1000 s: (82.0...88.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.40

rpm : 1250...1270 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 6.20...6.30 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

:

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order : IHC 7,6 R24 Test sheet Edition : 19.02.88 : 02.11.87 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 403 446 197 Tolerance + - 0 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1112 : 0 413 406 108 EP type number rpm: 800 1st speed Governor Governor design. : RQV350...1200MW46-15 Rack travel in mm : 11.00...11.10 Governer no. : 0 420 083 146 Del.quantity cm3/: 9.9...10.1 Customer-spec. information 100 s: (9.7...10.3) Customer : NAVISTAR : DTA-466 cm3 : 0.3Engine Spread 100 s: (0.6) 1st version kW : 158.0 Rated speed : 2400 rpm : 350.0 2nd speed Rack travel in mm: 6.3...6.4 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.9...2.3 100 s: (1.6...2.5) Test oil cm3 : 0.3inlet temp. OC : 38...42 Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar : 2.80 GUIDE SLEEVE TRAVEL 1st speed rpm : 1350 Test nozzle holder : 8.30...8.50 : 1 688 901 016 assembly travel mm 2nd speed rpm : 1460 travel mm : 9.10...9.50 Opening 3rd speed rpm : 550 : 207...210 pressure, bar : 3.10...3.70 travel mm 4th speed rpm : 350 Orifice plate diameter mm : 0.5 travel mm : 1.30...1.70 GUIDE SLEEVE POSITION Test lines : 1 680 750 008 Control-lever position Degree: -1 rpm : 1380 Outside diameter Speed Rack travel in mm : 6.70...9.30 x Wall thickness : 6.00X2.00X600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Speed rpm : 800 Aneroid pressure h: 800 per values ____ Del.quantity : 97.0...103.0)

cm3 : 3.50

1000 : (6.00)

Spread

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

RATED SPEED

1st version

Control lever

position degrees: 43...48

Testing:

1st rack travel in: 10.00

rpm : 1245...1265 Speed

2nd rack travel in: 4.00

Speed rpm : 1380...1390

4th rack travel in: 1500

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.3

Testing:

rpm : 100 Speed Minimum rack trave: 9.00

rpm : 350

Rack travel in mm : 6.30...6.40

CONSTANT REGULATION

Speed rpm : 360...450

Aneroid/Altitude

Compensator Test

1st version

Setting

rpm : 500 Speed Rack travel in mm: 200

Contr.-rod trav.mm: 10.70...10.80

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 10.40...10.50

2nd pressure hPa : 280

Rack travel in m: 10.80...11.10
3rd pressure hPa : 800

Rack travel in m: 11.00...11.10

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

: 1200 Speed rpm

Del.quantity cm3/: 101.0...105.0

1000 s: (99.0...107.0) cm3 : 5.00

Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 84.0...86.0

1000 s: (82.0...88.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

rpm : 1245...1265 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...180.0 1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.30...6.40 Del.quantity cm3/: 19.0...23.0 1000 s: (16.5...25.5) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position,

first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

F06

Set shutoff stop 1.5...2.0 mm before shutoff. F07

: 4.00...4.10 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : IHC 7,6 T Edition : 19.02.88 Replaces : 10.08.87 : 0-60-120-180-240-300 Test oil : ISO-4113 Phasing Tolerance + - D Combination no. : 0 403 446 198 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1160 EP type number : 0 413 406 147 1st speed rpm: 800 Governor Governor design. : RQV350...1200MW46-16 Rack travel in mm : 12.30...12.40 Governer no. : 0 420 083 147 Del.quantity cm3/: 11.8...12.0 Customer-spec. information Customer : NAVISTAR 100 s: (11.6...12.2) cm3 : 0.3Engine : DTA-466 Spread 1st version kW : 176.4 100 s: (0.6) : 2400 Rated speed rpm : 350.0 2nd speed Rack travel in mm: 6.5...6.6 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Test oil inlet temp. °C : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar: 2.80 GUIDE SLEEVE TRAVEL Test nozzle holder rpm : 1350 1st speed assembly : 1 688 901 016 : 8.30...8.50 travel mm rpm : 1460 2nd speed travel mm : 9.10...9.50 Opening 3rd speed rpm : 550 travel mm : 3.10...3.70 pressure, bar : 207...210 4th speed rpm : 350 Orifice plate : 1.30...1.70 diameter mm : 0.5 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 008 Control-lever position Degree: -1 Speed rpm: 1380 Rack travel in mm: 6.60...9.40 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 800 Speed Aneroid pressure h: 800 per values ____ Del.quantity : 118.0...120.0 1000 : (116.0...122.0) Spread cm3 : 3.50 BEGINNING OF DELIVERY Test pressure, bar: 30...32 1000 : (6.00)

Speed rpm : 1200 Del.quantity cm3/ : 120.0...124.0 RATED SPEED 1000 s: (118.0...126.0) cm3 : 6.50 1st version Spread 1000 s: (7.0) Control lever position degrees: 44...49 Aneroid pressure h: rpm : 800 Speed Del.quantity cm3/: 80.0...82.0 1000 s: (78.0...84.0) Testing: 1st rack travel in: 11.30 rpm : 1260...1280 Speed 2nd rack travel in: 4.00 rpm : 1385...1395 BREAKAWAY Speed 4th rack travel in: 1500 rpm : 0.00...1.00 1st version Speed 1mm rack travel less than LOW IDLE 1 Control lever full load rack tr: 11.30 position degrees: 12...20 Speed rpm : 1260...1280 Setting point w/out bumper spring : 350 STARTING FUEL DELIVERY rpm Rack travel in mm: 6.5 rpm : 100 Speed Testing: Del.quantity cm3/: 140.0...180.0 Speed rpm 1000 s: (137.0...183.0) Minimum rack trave: 9.00 rpm : 350 Speed Rack travel in mm : 19.00...21.00 Rack travel in mm : 6.50...6.60 LOW IDLE CONSTANT REGULATION Speed rpm : 300...450 Speed rpm : 350 Rack travel in mm : 6.50...6.60 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Aneroid/Altitude Compensator Test Spread cm3 : 3.50 1000 s: (5.50) 1st version Setting Remarks: Speed rpm : 800 Rack travel in mm: 180 Contr.-rod trav.mm: 10.30...10.40 Perform pump setting only with IH hose with restriction of 1.2 mm diameter. Measurement 1/min : 800 Speed 1st pressure hPa : -Rack travel in m: 10.00...10.10 2nd pressure hPa : 480 Before checking sleeve position, Rack travel in m: 11.80...12.10 first adjust latching. 3rd pressure hPa : 800 Rack travel in m: 12.30...12.40 START CUT-OUT In unlatched condition, do not operate greater than n = 500 1/min 1/min : 280 (290) Speed FUEL DELIVERY CHARACTERISTICS Set low idle at stop screw. 1st version Aneroid pressure h: 800

F09

Set shutoff stop 1.5...2.0 mm before shutoff.

: 4.00...4.10 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1-5-3-6-2-4 Test sheet : IHC 7,6 T 1 Edition : 19.02.88 : 10.08.87 Replaces Test oil : ISO~4113 Phasing : 0-60-120-180-240-300 Tolerance + - D Combination no. : 0 403 446 199 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1160 EP type number : 0 413 406 147 rpm : 800 1st speed Governor Governor design. : RQV350...1200MW46-17 Rack travel in mm : 11.30...11.40 : 0 420 083 148 Governer no. ~ Del.quantity cm3/: 10.1...10.3 Customer-spec. information 100 s: (9.9...10.5) Customer : NAVISTAR Engine : DTA-466 Spread cm3 : 0.3 1st version kW : 154.5 100 s: (0.6) Rated speed : 2400 rpm : 350.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 6.3...6.4 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Test oil inlet temp. °C : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 037 (B) Setting of injection pump with governor Inlet press., bar : 2.80 GUIDE SLEEVE TRAVEL 1st speed rpm : 1350 Test nozzle holder : 1 688 901 016 : 8.30...8.50 assembly travel mm 2nd speed rpm : 1460 travel mm : 9.10...9.50 Opening 3rd speed rpm : 550 : 207...210 pressure, bar travel mm : 3.10...3.70 4th speed rpm : 350 Orifice plate : 0.5 : 1.30...1.70 diameter mm travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 008 Control-lever position Degree: -1 rpm : 1380 Outside diameter Speed Rack travel in mm : 6.60...9,40 x Wall thickness : 6.00x2.00x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 800 Speed Aneroid pressure h: 800 per values : 101.0...103.0 Del.quantity 1000 : (99.0...105.0) cm3 : 3.50 BEGINNING OF DELIVERY Test pressure, bar: 30...32 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 44...49

Testing:

1st rack travel in: 10.30

rpm : 1260...1280

2nd rack travel in: 4.00

Speed rpm : 1375...1385

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

rpm : 350°

Rack travel in mm: 6.3

Testing:

rpm : 100 Speed

Minimum rack trave: 9.00 Speed rpm: 350

Rack travel in mm : 6.30...6.40

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude

Compensator Test

1st version

Setting

rpm : 500 Speed Rack travel in mm : 190

Contr.-rod trav.mm: 10.60...10.70

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 10.20...10.30

2nd pressure hPa : 290

Rack travel in m: 11.10...11.20

3rd pressure hPa : 800

Rack travel in m: 13.30...11.40

START CUT-OUT

Speed 1/min : 220 (210)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 1200

Del.quantity cm3/: 104.0...108.0

1000 s: (102.0...110.0)

cm3 : 6.50 Spread 1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 75.5...77.5

1000 s: (73.5...79.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30

rpm : 1260...1280 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 6.30...6.40

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

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Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position,

first adjust latching.

In unlatched condition, do not

operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 C 4 Edition : 29.01.88 : 21.08.87 Replaces Test oil : ISO-4113 : 0 403 466 105 Combination no. Injection pump Pump designation : PES6MW100/120RS1137 EP type number : 0 413 406 131 Governor : RSV400...1100MW2A319 Governor design. -4 : 0 420 085 080 Governer no. Customer-spec. information Customer : CUMMINS/US Engine : 6 CTA-8.3 L : 171.5 1st version kW Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0.6 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm : (3.45...3.65) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 750 1st speed Rack travel in mm: 14.00...14.10 Del.quantity cm3/: 15.0...15.2 100 s: (14.8...15.4) cm3 : 0.3Spread 100 s: (0.6) rpm : 400.0 2nd speed Rack travel in mm: 7.0...7.1 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...1.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 750 Speed : 150.5...152.5 Del.quantity 1000 : (148.5...154.5) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 40...48 Testing:

1st rack travel in: 10.90

2nd rack travel in: 4.00

Speed

rpm : 1150...1160

rpm : 1200...1230 Speed

4th rack travel in: 1300

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 16...24 Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm : 7.0

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm: 400

Rack travel in mm : 7.00...7.10

SET IDLE AUXILIARY SPRING Rack travel in mm : 4.00

TORQUE CONTROL

Torque control curve - 1st version 1st speed rpm : 750

Rack travel in m: 14.00...14.10

2nd speed rpm : 1100
Rack travel in m: 12.30...12.50
3rd speed rpm : 950

Rack travel in m: 13.60...14.00

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 1100 Speed

Del.quantity cm3/: 131.0...133.0

1000 s: (128.0...136.0)

cm3 : 5.00 Spread

1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.90

rpm : 1150...1160 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 125.0...145.0

1000 s: (122.0...148.0) Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400

Rack travel in mm : 7.00...7.10

F15

Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

Spread cm3 : 3.501000 s: (5.50)

Remarks:

Start-of-delivery mark 110 cam angle

after start of delivery cyl. 1

Starting/full-load transition speed from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks Test sheet : MWM 6,2 F Edition : 05.02.88 Phasing : 0-60-120-180-240-300 Replaces Tolerance + - 0 : ISO-4113 : 0.50 (0.75) Test oil BASIC SETTING Combination no. : 0 403 466 108 Injection pump 1st speed rpm : 1200 Pump designation : PES6MW100/320/3RS116 Rack travel in mm : 10.40...10.50 EP type number : 0 413 406 149 Del.quantity cm3/: 11.6...11.8 Governor Governor design. : RSV325...1200MWOA326 Governer no. : 0 420 085 085 100 s: (11.4...12.0) Customer-spec. information Spread cm3 : 0.3 Customer : MWM 100 s: (0.6) : TD 226 B-6 Engine rpm : 325.0 2nd speed : 136.0 Rack travel in mm: 6.6...6.7 1st version kW Del.quantity cm3/: 0.8...1.2 : 2400 Rated speed 100 s: (0.6...1.4) cm3 : 0.3TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: 3 : 1 417 413 047 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : 0 681 343 009 assembly 1st version Speed rpm : 1200 Aneroid pressure h: 700 Opening : 172...175 pressure, bar Del.quantity : 116.5...118.5 1000 : (114.5...120.5) cm3 : 3.50Spread 1000 : (6.00) Test lines : 1 680 750 014 RATED SPEED Outside diameter x Wall thickness : 6.00x2.00x600 1st version x Length mm Control lever position degrees: 40...48 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. Testing: per values 1st rack travel in: 9.40

rpm : 1240...1250

rpm : 1260...1300

rpm : 0.30...1.70

Speed

Speed

Speed

2nd rack travel in: 4.00

4th rack travel in: 1380

5th rack travel in: 1295...1325

F16

BEGINNING OF DELIVERY

Prestroke nim

Test pressure, bar: 30...32

: 4.00...4.10

: (3.95...4.15)

Speed rpm : 4.00 LOW IDLE 1 Control lever position degrees: 15...23 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 6.6 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 325 Rack travel in mm : 6.60...6.70 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 10.40...10.50 2nd speed rpm : 800 Rack travel in m: 10.60...10.70 3rd speed rpm : 500 Rack travel in m: 10.70...10.80 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed Rack travel in mm : -Contr.-rod trav.mm: 8.50...8.60 Measurement Speed 1/min : 500 1st pressure hPa : 270 Rack travel in m: 9.10...9.20 2nd pressure hPa : 450 Rack travel in m: 9.90...10.20 3rd pressure hPa : 700 Rack travel in m: 10.60...10.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 800 Speed Del.quantity cm3/: 113.5...116.5 1000 s: (110.5...118.5) cm3 : 5.00 Spread 1000 s: (7.0)

BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.40 Speed rpm : 1240...1250 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 90.0...110.0 1000 s: (87.0...113.0) Rack travel in mm: 19.00...21.00 LOW IDLE Speed rpm: 325 Rack travel in mm: 6.60...6.70 Del.quantity cm3/: 8.0...12.0 1000 s: (6.0...14.0) cm3 : 3.50 Spread 1000 s: (5.50) Remarks:

Test electrically-released starting quantity (EES) with 12 volts

Speed

Aneroid pressure h: -

rpm Del.quantity cm3/ : 62.5...64.5

: 500

1000 s: (60.5...66.5)

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1- 3- 4- 2 Firing order Note remarks Test sheet : VOL 4,5 G : 0-90-180-270 Phasing : 29.01.88 Edition Tolerance + - 0 Replaces : 31.10.86 : 0.50 (0.75) : ISO-4113 Test oil BASIC SETTING Combination no. : 0 403 474 001 1st speed rpm : 700 Injection pump Rack travel in mm : 11.90...12.00 : PES4MW100/320RS1102 Pump designation EP type number : 0 413 404 101 Del.quantity cm3/: 10.9...11.1 Governor Governor design. : RSV300...1000MW1A315 Governer no. : 0 420 085 025 100 s: (10.7...11.3) cm3 : 0.3Customer-spec. information Spread Customer : VOLVO-BM 100 s: (0.6) Engine : TD45 rpm : 300.0 2nd speed Rack travel in mm : 5.6...5.7 Del.quantity cm3/ : 1.3...1.7 1st version kW : 84.0 : 2000 Rated speed 100 s: (1.0...1.9) cm3 : 0.3TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. OC : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...1.00 : 1 417 413 000 Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : 0 681 343 009 assembly 1st version rpm : 700 Speed Del.quantity : 109.0...111.0 Opening 1000 : (107.0...113.0) cm3 : 3.50 1000 : (6.00) pressure, bar : 172...175 Spread : 1 680 750 014 Test lines RATED SPEED Outside diameter x Wall thickness 1st version : 6.00x2.00x600 Control lever x Length mm position degrees: 48...56 (A) Injection pump setting values Insp. values in parentheses Testing: Set equal delivery quant. 1st rack travel in: 10.90 rpm : 1040...1050 per values ____ Speed 2nd rack travel in: 4.00 rpm : 1055...1085 BEGINNING OF DELIVERY Speed 4th rack travel in: 1200 Test pressure, bar: 30...32 rpm : 0.30...1.70 Speed : 2.80...2.90 Prestroke mm : (2.75...2.95) LOW IDLE 1 Rack travel in mm : 9.00...12.00 Control lever

position degrees: 18...26 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.1 rpm : 300 Speed Rack travel in mm: 5.10...5.20 Rack travel in mm: 2.00 Speed rpm : 360...420 FUEL DELIVERY CHARACTERISTICS 1st version Speed : 1000 rpm Del.quantity cm3/: 110.0...114.0 1000 s: 107.5...116.5) Spread cm3 : 5.50 1000 s: (7.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.90 Speed rpm : 1040...1050 STARTING FUEL DELIVERY LOW IDLE rpm : 300 Speed Rack travel in mm: 5.60...5.70
Del.quantity cm3/: 13.0...17.0
1000 s: (10.5...19.5)
Spread cm3: 3.50 1000 s: (5.50) Remarks: Set 12.6...12.7 mm control-rod travel at lower full-load stop with $n = 1000 \, 1/min.$ Make full-load setting at upper fullload stop in accordance with test

specifications.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-3-4-2 Note remarks Test sheet : MB 4,0 A 18 : 0-90-180-270 Phasing : 19.02.88 Edition Tolerance + - 0 : 13.05.87 : 0.50 (0.75) Replaces Test oil : ISO-4113 BASIC SETTING : 0 403 474 002 Combination no. rpm: 1200 1st speed Injection pump Rack travel in mm : 11.30...11.40 Pump designation : PES4MW100/720RS1127 EP type number : 0 413 404 103 Del.quantity cm3/: 7.8...8.0 Governor Governor design. : RSV350...1200MWOA322 100 s: (7.6...8.2) : 0 420 085 075 Governer no. cm3 : 0.3Customer-spec. information Spread Customer : DB 100 s: (0.6) : 0M364A Engine rpm : 350.0 2nd speed Rack travel in mm: 7.1...7.2 1st version kW : 66.0 Del.quantity cm3/: 0.8...1.0 Rated speed : 2400 100 s: (0.6...1.4) cm3 : 0.3TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. OC GUIDE SLEEVE POSITION : 38...42 Control-lever position Degree: -3 Overflow valve : 1 417 413 047 rpm : 800 Rack travel in mm : 0.30...1.00 Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : 0 681 343 009 1st version assembly rpm : 1200 Speed : 78.0...80.0 Del.quantity Opening : 172...175 1000 : (76.0...82.0) pressure, bar : 3.50 cm3 Spread 1000 : (6.00) : 1 680 750 008 Test lines RATED SPEED Outside diameter x Wall thickness 1st version Control lever : 6.00x2.00x600 x Length mm position degrees: 52...60 (A) Injection pump setting values Insp. values in parentheses Testing: 1st rack travel in: 10.30 Set equal delivery quant. rpm : 1240...1245 per values Speed 2nd rack travel in: 4.00 BEGINNING OF DELIVERY rpm : 1322...1335 Speed 3rd rack travel in: 4.00 Test pressure, bar: 30...32 fpm : 1355...1385 Speed 4th rack travel in: 1450 : 3.70...3.80 Prestroke mm rpm : 0.30...1.70 : (3.65...3.85) Speed Rack travel in mm : 9.00...12.00

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LOW IDLE 1
Setting point w/out bumper spring
                 : 350
Speed
           rpm
Rack travel in mm: 7.1
Testing:
Speed
            rpm
                 : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 7.10...7.20
Rack travel in mm: 2.00
Speed
            rpm : 480...540
TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1200
  Rack travel in m: 11.30...11.40
2nd speed rpm : 600
  Rack travel in m: 12.10...12.20
3rd speed rpm : 900
  Rack travel in m: 11.70...11.80
4th speed rpm : 950
  Rack travel in m: 11.50...11.70
FUEL DELIVERY CHARACTERISTICS
1st version
                 : 600
Speed
            rpm
Del.quantity cm3/: 68.0...70.0
            1000 s: (66.0...72.0)
Spread
             cm3 : 5.00
            1000 s: (7.0)
            rpm : 900
Speed
Del.quantity cm3/: 77.0...79.0
1000 s: (75.0...81.0)
             cm3 : 5.00
Spread
            1000 s: (7.00)
STARTING FUEL DELIVERY
Speed
                 : 100
            rpm
Del.quantity cm3/: 85.0...95.0
            1000 s: (82.0...98.0)
LOW IDLE
Speed rpm : 350
Rack travel in mm : 7.10...7.20
Del.quantity cm3/: 8.0...10.0
            1000 s: (6.0...14.0)
             cm3 : 3.50
Spread
            1000 s: (5.00)
Remarks:
```

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 : IHC 7.6 R 5 : 19.02.88 Test sheet Firing order Edition Replaces : 11.85 Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 403 476 024 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PES6MW100/320RS1121 BASIC SETTING EP type number : 0 413 406 115 rpm : 800 1st speed Governor Governor design. : RSV450...1200MW2A313 Rack travel in mm: 12.30...12.40 -1 : 0 420 085 040 Governer no. Del.quantity cm3/: 12.2...12.4 Customer-spec. information : NAVI-STAR 100 s: (12.0...12.6) Customer : DTI-466C Spread cm3 : 0.3Engine : 175.2 100 s: (0.6) 1st version kW Rated speed : 2400 rpm : 450.0 2nd speed Rack travel in mm: 5.7...5.8 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4) Test oil inlet temp. °C cm3 : 0.3 : 38...42 Spread 100 s: (0.5) Overflow valve : 2 417 413 037 GUIDE SLEEVE POSITION Control-lever position Degree: -3 Inlet press,, bar: 2.80 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Test nozzle holder : 1 688 901 016 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening : 207...210 1st version pressure, bar Speed rpm : 800 Aneroid pressure h: 900 Orifice plate Del.quantity : 122.0...124.0 1000 : (120.0...126.0) diameter mm : 0.5 cm3 : 3.50 Spread 1000 : (6.00) Test lines : 1 680 750 008 RATED SPEED Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 1st version Control lever position degrees: 45...50 (A) Injection pump setting values Insp. values in parentheses Testing: Set equal delivery quant.

BEGINNING OF DELIVERY Test pressure, bar: 30...32

per values

Speed rpm : 1320...1330

rpm : 1240...1250

1st rack travel in: 10.90

2nd rack travel in: 4.00

Speed

4th rack travel in: 1400 rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring Speed rpm : 450 Rack travel in mm : 5.7 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 450 Rack travel in mm: 5.70...5.80 SET IDLE AUXILIARY SPRING Rack travel in mm: 4.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 11.90...12.00 2nd speed rpm : 1150 Rack travel in m: 11.90...12.00 3rd speed rpm : 800 Rack travel in m: 12.30...12.40 4th speed rpm : 600 Rack travel in m: 12.30...12.50 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed Rack travel in mm: 900 Contr.-rod trav.mm: 12.30...12.40 Measurement Speed 1/min: 500 1st pressure hPa : 260 Rack travel in m: 11.10...11.20 2nd pressure hPa : 540 Rack travel in m: 11.90...12.00 3rd pressure hPa : -Rack travel in m: 10.70...10.80 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 rpm : 1200 Speed Del.quantity cm3/: 118.0...120.0 1000 s: (116.0...122.0) Spread cm3 : 6.50 1000 s; (7.0)

Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 91.0...93.0 1000 s: (89.0...95.0) BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.90 rpm : 1240...1250 Speed

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 450 Rack travel in mm : 5.70...5.80 Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5) Spread cm3: 3.50

1000 s: (5.00)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

Start-of-delivery mark: stop lever 25° toward shutoff: control-rod travel = 9...12 mm. (Free travel of stop lever must have been overcome beforehand.)

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before

shutoff.

Check hydraulic latching of starting fuel delivery with 1.5 bar air.

Position idle auxiliary spring to make contact, then turn back 1/4 rotation

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 Test sheet : IHC 7,6 R 3 : 1-5-3-6-2-4 Firing order : 19.02.88 Edition Replaces : 11.85 Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 : 0 403 476 025 Combination no. Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PES6MW100/320RS1121 BASIC SETTING EP type number : 0 413 406 115 rpm: 800 Governor 1st speed Governor design. : RSV450...1200MW2A313 Rack travel in mm : 10.60...10.70 -2 : 0 420 085 041 Governer no. Del.quantity cm3/: 10.8...11.0 Customer-spec. information Customer : NAVI-STAR 100 s: (10.6...11.2) Engine : DTI-466C Spread cm3 : 0.3 1st version kW : 156.6 100 s: (0.6) : 2400 Rated speed rpm : 450.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 4.8...4.9 Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4) Test oil inlet temp. OC : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 037 GUIDE SLEEVE POSITION Control-lever position Degree: -3 Inlet press., bar : 2.80 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Test nozzle holder : 1 688 901 016 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 172...175 1st version Speed rpm : 800 Aneroid pressure h: 900 Orifice plate Del.quantity : 108.5...110.5 diameter mm : 0.5 1000 : (106.5...112.5) cm3 : 3.50Spread : 1 680 750 008 Test lines 1000 : (6.00) RATED SPEED Outside diameter x Wall thickness : 6.00X2.00X600 1st version x Length mm Control lever position degrees: 49...54 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. Testing: per values 1st rack travel in: 8.90 Speed rpm : 1260...1270 BEGINNING OF DELIVERY 2nd rack travel in: 4.00 Test pressure, bar: 30...32 rpm : 1355...1365 Speed

4th rack travel in: 1400 Del.quantity cm3/: 78.0...80.0 rpm : 0.30...1.70 1000 s: (76.0...82.0) Speed LOW IDLE 1 Control lever BREAKAWAY position degrees: 21...29 Setting point w/out bumper spring 1st version : 450 1mm rack travel less than rpm Rack travel in mm: 4.8 full load rack tr: 8.90 Testing: rpm : 1260...1270 Speed Speed rpm : 100 Minimum rack trave: 19.00 STARTING FUEL DELIVERY : 450 Speed rpm Rack travel in mm : 4.80...4.90 Speed rpm : 100 SET IDLE AUXILIARY SPRING Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0) Rack travel in mm: 4.00 Rack travel in mm : 19.00...21.00 TORQUE CONTROL Torque control curve - 1st version LOW IDLE 1st speed rpm : 1200
Rack travel in m: 9.90...10.00
2nd speed rpm : 850 Speed rpm : 450 Rack travel in mm : 4.80...4.90 Rack travel in m: 10.60...10.70 Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5) 3rd speed rpm : 800 Rack travel in m: 10.30...10.70 cm3 : 3.50 Spread 1000 s: (5.00) Aneroid/Altitude Compensator Test Remarks: Perform pump setting only with IH hose with restriction of 1.2 mm diameter. 1st version Setting rpm : 500 Speed Rack travel in mm: 900 Contr.-rod trav.mm: 10.60...10.70 Measurement 1/min: 500 Speed Before checking sleeve position, first adjust latching. 1st pressure hPa : 320 Rack travel in m: 9.30...9.40 2nd pressure hPa : 570 Rack travel in m: 10.20...10.30 3rd pressure hPa : -Start-of-delivery mark: stop lever Rack travel in m: 9.00...9.10 25° toward shutoff: control-rod travel = 9...12 mm. (Free travel of stop lever must have been overcome FUEL DELIVERY CHARACTERISTICS beforehand.) 1st version Aneroid pressure h: 900 Set low idle at stop screw. rpm : 1200 Speed Del.quantity cm3/: 102.5...104.5 1000 s: (116.0...122.0) cm3 : 6.50 Spread 1000 s: (7.0) Set shutoff stop 1.5...2.0 mm before Aneroid pressure h: -

shutoff.

Speed

: 500

rpm

Check hydraulic latching of starting fuel delivery with 1.5 bar air.

Position idle auxiliary spring to make contact, then turn back 1/4 rotation

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 Test sheet : IHC 7,6 R 2 : 1-5-3-6-2-4 Firing order : 19.02.88 Edition Replaces : 11.85 Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 403 476 026 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PES6MW100/320RS1122 BASIC SETTING EP type number : 0 413 406 116 rpm: 700 Governor 1st speed : RSV350...1050MW2/312 Governor design. Rack travel in mm : 13.00...13.10 : 0 420 085 042 Governer no. Del.quantity cm3/: 10.2...10.4 Customer-spec. information Customer : NAVI-STAR 100 s: (10.0...10.6) Engine : DT 466 Spread cm3 : 0.3: 118.0 100 s: (0.6) 1st version kW : 2100 Rated speed rpm : 350.0 2nd speed Rack travel in mm: 6.2...6.3 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.3...1.7 100 s: (1.0...1.9) Test oil inlet temp. °C : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 037 GUIDE SLEEVE POSITION Control-lever position Inlet press., bar: 2.80 Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Test nozzle holder : 1 688 901 016 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 207...210 1st version Speed rpm : 700 ; 102.0...104.0 Orifice plate Del.quantity 1000 : (100.0...106.0) diameter mm : 0.5 cm3 : 3.50 Spread 1000 : (6.00) Test lines : 1 680 750 008 RATED SPEED Outside diameter x Wall thickness 1st version x Length mm : 6.00x2.00x600 Control lever position degrees: 38...44 (A) Injection pump setting values Insp. values in parentheses Testing: Set equal delivery quant. 1st rack travel in: 11.10 Speed rpm : 1090...1100 per values _____ 2nd rack travel in: 4.00 BEGINNING OF DELIVERY rpm : 1155...1165 Speed

4th rack travel in: 1200

Test pressure, bar: 30...32

Speed rpm : 0.30...1.70 LOW IDLE 1 Control lever position degrees: 15...24 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6.2 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 6.20...6.30 SET IDLE AUXILIARY SPRING Rack travel in mm: 4.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 11.90...12.00 2nd speed rpm : 700 Rack travel in m: 13.00...13.10 3rd speed rpm : 600 Rack travel in m: 13.30...13.60 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 1050 Speed Del.quantity cm3/: 91.0...93.0 1000 s: (88.0...96.0) cm3 : 6.50 Spread 1000 s: (7.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.10 Speed rpm : 1090...1100 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 140.0...180.0 1006 s: (137.0...183.0) Rack travel in mm : 19.00...21.00

Spread cm3 : 3.501000 s: (5.50) Remarks: Perform pump setting only with IH hose with restriction of 1.2 mm diameter. Before checking sleeve position, first adjust latching. Start-of-delivery mark: stop lever 25° toward shutoff: control-rod travel = 9...12 mm. (Free travel of stop lever must have been overcome beforehand.) Set low idle at stop screw. Set shutoff stop 1.5...2.0 mm before shutoff. Check hydraulic latching of starting fuel delivery with 1.5 bar air. Position idle auxiliary spring to make contact, then turn back 1/4 rotation

LOW IDLE

Speed

rpm : 350

1000 s: (10.5...19.5)

Rack travel in mm : 6.20...6.30 Del.quantity cm3/: 13.0...17.0

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 : 4.00...4.10 Note remarks Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Test sheet : IHC 7,6 P 4 Firing order : 1-5-3-6-2-4 Edition : 19.02,88 : 24.08.87 Replaces Test oil : ISO-4113 Combination no. : 0 403 476 030 : 0-60-120-180-240-300 Phasing Phasing Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PES6MW100/320RS1109 EP type number : 0 413 406 104 Time to cyl. no. : 1 Governor BASIC SETTING : RSV350...1250Mw2/313 Governor design. : 0 420 085 049 1st speed rpm: 800 Governer no. Rack travel in mm : 13.40...13.50 Customer-spec. information Customer : NAVI-STAR Del.quantity cm3/: 11.6...11.8 : DTI-466 C Engine 100 s: (11.4...12.0) 1st version kW : 160.0 cm3 : 0.3Rated speed : 2500 Spread : 2500 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.0 2nd speed Rack travel in mm: 6.3...6.4 Test oil inlet temp. °C Del.quantity cm3/: 1.8...2.3 : 38...42 100 s: (1.6...2.5) cm3 : 0.3 Overflow valve Spread : 2 417 413 037 100 s: (0.5) GUIDE SLEEVE POSITION Inlet press., bar : 2.80 Control-lever position Test nozzle holder Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...1.00 : 1 688 901 016 assembly Opening FULL LOAD DELIV. AT FULL LOAD STOP : 207...210 pressure, bar Orifice plate 1st version rpm : 800 diameter mm : 0.5 Speed Aneroid pressure h: 900 : 116.5...118.5 Del.quantity 1000 : (114.5...120.5) cm3 : 3.50 : 1 680 750 008 Test lines Spread 1000 : (6.00) Outside diameter x Wall thickness : 6.00X2.00X600 RATED SPEED x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Control lever Set equal delivery quant. position degrees: 52...57 per values ____ Testing: BEGINNING OF DELIVERY 1st rack travel in: 11.20

G02

Speed rpm : 1290...1300 2nd rack travel in: 4.00 rpm : 1390...1400 Speed 4th rack travel in: 1470 rom : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 20...28 Setting point w/out bumper spring rpm : 350° Rack travel in mm: 6.3 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350 Rack travel in mm : 6.30...6.40 SET IDLE AUXILIARY SPRING Speed rpm : 4.00 TORQUE CONTROL Torque control curve - 1st version 1st speed from : 800 Rack travel in m: 13.40...13.50 2nd speed rpm : 1250 Rack travel in m: 12.20...12.30 3rd speed rpm : 840 Rack travel in m: 13.40...13.50 4th speed rpm : 1200 Rack travel in m: 12.20...12.30 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Rack travel in mm: 900 Contr.-rod trav.mm: 13.40...13.50 Measurement 1/min : 500 Speed ist pressure hPa : -Rack travel in m: 11.40...11.50 2nd pressure hPa : 200

Rack travel in m: 11.80...11.90

Rack travel in m: 12.70...13.00

rpm : 1250

FUEL DELIVERY CHARACTERISTICS

3rd pressure hPa : 490

Aneroid pressure h: 900

Del.quantity cm3/: 105.0...107.0 1000 s: (103.0...109.0) Spread cm3 : 6.501000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 82.0...84.0 1000 s: (79.0...87.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.20 rpm : 1290...1300 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 350 Speed Del.quantity cm3/: 18.0...23.0 1000 s: (16.5...25.5) Spread cm3 : 3.50 1000 s: (5.50)

Rack travel in mm : 6.30...6.40

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Speed

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks Test sheet : PEN 6,1 M : 12.02.88 : 0-60-120-180-240-300 Edition Phasing Replaces : 11.85 Test oil : ISO-4113 Tolerance + - 0 : 0.50 (0.75) Combination no. : 0 403 476 043A BASIC SETTING rpm: 1000 Injection pump 1st speed Pump designation : PES6MW100/320RS1132 EP type number Rack travel in mm : 10.80...10.90 : 0 413 406 124 Governor Del.quantity cm3/: 8.5...8.7 : RSV300...1050MW4A308 Governor design. -2 : 0 420 085 050 100 s: (8.3...8.9) Governer no. cm3 : 0.3 Spread Customer-spec. information : VOLVO-PENTA Customer 100 s: (0.6) : TD 61 ACE Engine rpm : 300.0 2nd speed 1st version kW : 112.0 Rack travel in mm: 6.1...6.2 Del.quantity cm3/: 1.2...1.6 : 2100 Rated speed 100 s: (0.9...1.8) TEST BENCH REQUIREMENTS Spread cm3 : 0.3100 s: (0.5) Test oil inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -3 rpm : 800 : 1 417 413 000 Speed Rack travel in mm : 0.30...1.00 Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : 0 681 343 009 assembly 1st version rpm : 1000 Speed Del.quantity : 85.0...87.0 Opening 1000 : (83.0...89.0) pressure, bar : 172...175 cm3 : 3.50Spread 1000 : (6.00) Test lines : 1 680 750 014 RATED SPEED Outside diameter x Wall thickness 1st version x Length mm : 6.00x2.00x600 Control lever position degrees: 65...73 (A) Injection pump setting values Insp. values in parentheses Testing: Set equal delivery quant. 1st rack travel in: 9.80 rpm : 1090...1100 per values Speed 2nd rack travel in: 4.00 BEGINNING OF DELIVERY rpm : 1140...1170 Speed 4th rack travel in: 1250 Test pressure, bar: 30...32 rpm : 0.30...1.70 Speed : 2.90...3.00 Prestroke mm

LOW IDLE 1

: (2.85...3.05)

Control lever

position degrees: 25...33

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 5.6

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm : 300 Rack travel in mm : 5.60...5.70

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.80

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 100.0...110.0 1000 s: (107.0...113.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 6.10...6.20 Del.quantity cm3/: 12.0...16.0 1000 s: (9.5...18.5) Spread cm3 : 3.50

1000 s: (5.50)

:

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 Test sheet : IHC 7,6 R 4 Firing order : 1-5-3-6-2-4 Edition : 19.02.88 : 12.09.86 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing : 0 403 476 047 Combination no. Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PES6MW100/320RS1121 BASIC SETTING EP type number : 0 413 406 115 rpm: 950 Governor 1st speed : RSV500...1250MW2/312 Governor design. Rack travel in mm : 11.30...11.40 -5 : 0 420 085 058 Governer no. Del.quantity cm3/: 10.8...11.0 Customer-spec. information Customer : NAVI-STAR 100 s: (10.6...11.2) cm3 : 0.3 : DTI-466C Spread Engine : 167.0 1st version kW 100 s: (0.6) : 2500 Rated speed rpm : 500.0 2nd speed Rack travel in mm : 5.4...5.5 Del.quantity cm3/ : 1.6...2.0 TEST BENCH REQUIREMENTS 100 s: (1.3...2.2) Test oil inlet temp. °C cm3 : 0.3: 38...42 Spread 100 s: (0.5) Overflow valve : 2 417 413 037 GUIDE SLEEVE POSITION Control-lever position Degree: -3 Inlet press., bar: 2.80 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Test nozzle holder : 1 688 901 016 assembly FULL LOAD DELIV. AT FULL LOAD STOP **Opening** : 207...210 1st version pressure, bar rpm : 950 Speed : 108.0...110.0 Orifice plate Del.quantity 1000 : (106.0...112.0) diameter mm : 0.5 : 3.50 Spread Σ m2 1000 : (6.00) : 1 680 750 008 Test lines RATED SPEED Outside diameter x Wall thickness 1st version : 6.00X2.00X600 x Length mm Control lever position degrees: 50...55 (A) Injection pump setting values Insp. values in parentheses Testing: 1st rack travel in: 10.30 Set equal delivery quant. rpm : 1315...1325 per values ____ Speed 2nd rack travel in: 4.00 BEGINNING OF DELIVERY rom : 1370...1380 Speed 4th rack travel in: 1400 Test pressure, bar: 30...32

G06

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 24...32 Setting point w/out bumper spring

rpm : 500 Rack travel in mm: 5.4

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm : 500 Rack travel in mm : 5.40...5.50

SET IDLE AUXILIARY SPRING Rack travel in mm : 4.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1250 Del.quantity cm3/ : 110.5...114.5 1000 s: (108.5...116.5)

cm3 : 6.50 Spread 1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.30

rpm : 1315...1325 Speed

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500 Rack travel in mm : 5.40...5.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

Spread cm3 : 3.50 1000 s: (5.00)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

Start-of-delivery mark: stop lever 25° toward shutoff: control-rod travel = 9...12 mm. (Free travel of stop lever must have been overcome beforehand.)

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

Check hydraulic latching of starting fuel delivery with 1.5 bar air.

Position idle auxiliary spring to make contact, then turn back 1/4 rotation

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm Note remarks : (3.95...4.15) Rack travel in mm : 9.00...12.00 : IHC 7.6 R : 19.02.88 : 1-5-3-6-2-4 Test sheet Firing order Edition : 24.08.87 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 403 476 050 Tolerance + - D : 0.50 (0.75) Injection pump Pump designation : PES6MW100/320RS1121 BASIC SETTING EP type number : 0 413 406 115 rpm: 950 Governor 1st speed : RSV500...1250MW2A312 Governor design. Rack travel in mm : 11.80...11.90 -6 : 0 420 085 063 Governer no. Del.quantity cm3/: 10.8...11.0 Customer-spec. information : NAVI-STAR 100 s: (10.6...11.2) Customer Engine : DT-466 C Spread cm3 : 0.3: 160.3 100 s: (0.6) 1st version kW : 2500 Rated speed 2nd speed rpm : 500.0 TEST BENCH REQUIREMENTS Rack travel in mm : 6.2...6.3 Del.quantity cm3/: 1.8...2.2 100 s: (1.3...2.6) Test oil inlet temp. °C : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 037 GUIDE SLEEVE POSITION Control-lever position Degree: -3 Inlet press., bar: 2.80 rpm : 800 Speed Test nozzle holder Rack travel in mm : 0.30...1.00 : 1 688 901 016 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 207...210 1st version Speed rpm : 950 : 108.0...110.0 Orifice plate Del.quantity 1000 : (106.0...112.0) diameter mm : 0.5 : 3.50 cm3 Spread 1000 : (6.00) Test lines : 1 680 750 008 RATED SPEED Outside diameter x Wall thickness 1st version : 6.00x2.00x600 Control lever x Length mm position degrees: 49...54 (A) Injection pump setting values Insp. values in parentheses Testing: Set equal delivery quant. 1st rack travel in: 10.60 rpm : 1295...1305 per values ____ Speed 2nd rack travel in: 4.00 Speed rpm : 1365...1375 BEGINNING OF DELIVERY

4th rack travel in: 1400

Test pressure, bar: 30...32

Speed rom : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 22...30 Setting point w/out bumper spring

rpm : 500 Rack travel in mm: 6.2

Testing:

Speed : 100 Lbw Minimum rack trave: 19.00 Speed rpm : 500

Rack travel in mm : 6.20...6.30

SET IDLE AUXILIARY SPRING Rack travel in mm: 4.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 1250 rpm

Del.quantity cm3/: 107.0...111.0 1000 s: (105.0...113.0)

cm3 : 6.50 Spread

1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.60

rpm : 1295...1305 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...180.0 1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

rpm : 1365 Speed

Del.quantity cm3/: 15.0...23.0 1000 s: (14.0...24.0)

LOW IDLE

rpm : 500

Rack travel in mm : 6.20...6.30 Del.quantity cm3/: 18.0...22.0 1000 s: (13.5...26.5) Spread cm3: 3.50

1000 s: (5.00)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

Start-of-delivery mark: stop lever 250 toward shutoff: control-rod travel = 9...12 mm. (Free travel of stop lever must have been overcome beforehand.)

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

Position idle auxiliary spring to make contact, then turn back 1/4 rotation

: 4.00...4.10 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : IHC 7,6 R19 Edition : 19.02.88 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Tolerance + - 0 Combination no. : 0 403 476 051 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1121 : 0 413 406 115 EP type number rom: 800 1st speed Governor Rack travel in mm : 9.50...9.60 Governor design. : RSV350...1200MW2A321 Governer no. T : 0 420 085 064 Del.quantity cm3/: 6.8...7.0 Customer-spec. information 100 s: (6.6...7.2) Customer : NAVI-STAR : DT-466 C Spread cm3 : 0.3 Engine : 93.0 100 s: (0.6) 1st version kW Rated speed : 2400 rpm : 350.0 2nd speed Rack travel in mm: 6.5...6.6 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4) Test oil inlet temp. OC : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 037 GUIDE SLEEVE POSITION Control-lever position Degree: -3 Inlet press., bar : 2.80 rpm : 800 Rack travel in mm : 0.30...1.00 Test nozzle holder : 1 688 901 016 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening : 207...210 1st version pressure, bar rpm : 800 Speed Orifice plate Del.quantity : 68.0...70.0 1000 : (66.0...72.0) diameter mm : 0.5 : 3.50 Spread cm3 1000 : (6.00) : 1 680 750 008 Test lines RATED SPEED Outside diameter x Wall thickness 1st version : 6.60x2.00x600 Control lever x Length mm position degrees: 54...59 (A) Injection pump setting values Insp. values in parentheses Testing: 1st rack travel in: 7.60 Set equal delivery quant. per values rpm : 1240...1260 Speed 2nd rack travel in: 4.00 rpm : 1295...1305 BEGINNING OF DELIVERY Speed 4th rack travel in: 1400 Test pressure, bar: 30...32 rpm : 0.30...1.70 Speed

LOW IDLE 1

Control lever

position degrees: 24...32

Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm: 6.5

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 350 Speed

Rack travel in mm : 6.50...6.60

SET IDLE AUXILIARY SPRING Rack travel in mm : 4.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 800 Rack travel in m: 9.50...9.60

2nd speed rpm : 1200

Rack travel in m: 8.60...8.70

3rd speed rpm : 1150 Rack travel in m: 8.80...8.90

4th speed rpm : 1050

Rack travel in m: 9.00...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1200 Del.quantity cm3/ : 59.5...61.5 1000 s: (56.5...64.0)

cm3 : 6.50Spread

1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 7.60

Speed rpm : 1240...1260

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0)

Rack travel in mm: 19.00...21.00

HIGH IDLE

1st version

rpm : 1305 Speed

Del.quantity cm3/: 12.0...20.0

1000 s: (11.0...20.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.50...6.60

Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5)

cm3 : 3.50 Spread

1000 s: (5.00)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

Start-of-delivery mark: stop lever 25° toward shutoff: control-rod travel = 9...12 mm. (Free travel of stop lever must have been overcome beforehand.)

Set shutoff stop 1.5...2.0 mm before shutoff.

Position idle auxiliary spring to make contact, then turn back 1/4 rotation

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : IHC 7,6 R18 Test sheet : 19.02.88 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 476 053 Injection pump Pump designation : PES6MW100/320RS1121 EP type number : 0 413 406 115 Governor : RSV350...1050MW2A321 Governor design. : 0 420 085 066 Governer no. Customer-spec. information : NAVI-STAR Customer : DT-466 C Engine 1st version kW : 129.0 Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 2 417 413 037 Inlet press., bar : 2.80 Test nozzle holder : 1 688 901 016 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0.5 : 1 680 750 008 Test lines Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm

: 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) BASIC SETTING rpm : 700 1st speed Rack travel in mm : 11.70...11.80 Del.guantity cm3/: 10.5...10.7 100 s: (10.3...10.9) cm3 : 0.3Spread 100 s: (0.6) rpm : 350.0 2nd speed Rack travel in mm: 6.2...6.3 Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 16.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 700 : 105.5...107.5 Del.quantity 1000 : (103.5...109.5) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 40...45 Testing:

1st rack travel in: 9.70

Speed rpm : 1090...1110

(A) Injection pump setting values

Set equal delivery quant.

per values

Test pressure, bar: 30...32

BEGINNING OF DELIVERY

Insp. values in parentheses

2nd rack travel in: 4.00 rpm : 1155...1165 Speed 4th rack travel in: 1400 rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 14...22 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6.2 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 6.20...6.30 SET IDLE AUXILIARY SPRING Rack travel in mm: 4.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 700
Rack travel in m: 11.70...11.80
2nd speed rpm : 1050
Rack travel in m: 10.70...10.80 3rd speed rpm : 1000 Rack travel in m: 10.70...10.90 4th speed rpm : 900 Rack travel in m: 11.00...11.30 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1050 Del.quantity cm3/: 94.5...96.5 1000 s: (91.0...100.0) cm3 : 6.50 Spread 1000 s: (7.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.70 rpm : 1090...1110 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0) Rack travel in mm: 19.00...21.00

HIGH IDLE

G13

1st version rpm : 1155 Speed Del.quantity cm3/: 12.0...20.0 1000 s: (11.0...21.0) LOW IDLE rpm : 350 Speed Rack travel in mm : 6.20...6.30 Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5) cm3 : 3.50Spread 1000 s: (5.00) Remarks: Perform pump setting only with IH hose with restriction of 1.2 mm diameter. Before checking sleeve position, first adjust latching.

Start-of-delivery mark: stop lever 25° toward shutoff: control-rod travel = 9...12 mm. (Free travel of stop lever must have been overcome beforehand.)

Set shutoff stop 1.5...2.0 mm before shutoff.

Position idle auxiliary spring to make contact, then turn back 1/4 rotation

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 6.0 D 32 : 05.02.88 Test sheet Edition : 05.06.87 Replaces : ISO-4113 Test oil Combination no. : 0 403 476 055 Injection pump Pump designation : PES6MW100/720RS1144 EP type number : 0 413 406 138 Governor : RSV350...1200MW1A316 Governor design. : 0 420 085 077 Governer no. Customer-spec. information Customer : 0M366A Engine 1st version kW : 92.0 : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina pressure, bar : 172...175 : 1 680 750 008 Test lines Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 3.70...3.80 Prestroke mm : (3.65...3.85)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING rpm: 1200 1st speed Rack travel in mm : 9.60...9.70 Del.quantity cm3/ : 6.6...6.8 100 s: (6.4...7.0) cm3 : 0.3 Spread 100 s: (0.6) 2nd speed rpm: 350.0 Rack travel in mm: 6.3...6.9 Del.quantity cm3/: 1.0...1.2 100 s: (0.7...1.5) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...1.00 Governor spring pre-tension Click setting x : 15.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1200 : 66.0...68.0 Del.quantity 1000 : (64.0...70.0) cm3 : 3.50 Spread 1000 : (6,00) RATED SPEED 1st version Control lever position degrees: 58...66 Testing: 1st rack travel in: 8.60 Speed rpm : 1240...1245 2nd rack travel in: 4.00 rpm : 1263...1276 Speed 3rd rack travel in: 8.60

Speed rpm : 1240...1255 4th rack travel in: 1450 rpm : 0.30...1.70 Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm: 6.6 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 6.30...6.90
Rack travel in mm : 2.00 Speed rpm : 415...475 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 9.60...9.70 2nd speed rpm : 800 Rack travel in m: 10.50...10.60 3rd speed rpm : 950 Rack travel in m: 9.90...10.10 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 800 Speed Del.quantity cm3/: 68.0...70.0 1000 s: (66.0...72.0) cm3 : 5.00 Spread 1000 s: (7.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.60 rpm : 1240...1245 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 80.0...90.0 1000 s: (77.0...93.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 350 Speed

Spread cm3 : 3.50 1000 s: (5.00)

Remarks:

:

Rack travel in mm : 6.30...6.90 Del.quantity cm3/ : 10.0...12.0 1000 s: (7.0...15.0)

Rack travel in mm : 9.00...12.00 BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : MB 6,0 D 33 : 05.02.88 Edition Phasing : 0-60-120-180-240-300 : 31.07.87 Replaces Tolerance + - 0 Test oil : ISO-4113 : 0.50 (0.75) Combination no. : 0 403 476 056 BASIC SETTING rpm: 1200 Injection pump 1st speed Pump designation : PES6MW100/720RS1144 Rack travel in mm : 10.20...10.30 EP type number : 0 413 406 138 Governor Del.quantity cm3/ : 7.7...7.9 : RSV350...1200MW1A316 Governor design. : 0 420 085 078 100 s: (7.5...8.1) Governer no. Customer-spec. information Spread cm3 : 0.3Customer 100 s: (0.6) : 0M366A Engine rpm : 350.0 2nd speed 1st version kW : 100.0 Rack travel in mm : 6.1...6.7 Rated speed : 2400 Del.quantity cm3/: 1.0...1.2 100 s: (0.7...1.5) cm3 : 0.3TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -3 : 1 417 413 000 rpm : 800 Speed Rack travel in mm: 0.30...1.00 Inlet press., bar: 1.50 Governor spring pre-tension Test nozzie holder Click setting x : 3.50 : 0 681 343 009 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 172...175 1st version rpm : 1200 Speed : 77.0...79.0 Del.quantity 1000 : (75.0...81.0) Test lines : 1 680 750 008 : 3.50 Spread cm3 1000 : (6.00) Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Control lever Set equal delivery quant.

position degrees: 58...66

Testing:

1st rack travel in: 9.20

Speed rpm : 1240...1245

2nd rack travel in: 4.00

rpm : 1271...1284 Speed

4th rack travel in: 1450

per values ____

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

: 3.70...3.80

: (3.65...3.85)

rpm : 0.30...1.70 Speed 5th rack travel in: 1240...1255 rpm : 9.20 Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm: 6.4 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 6.10...6.70
Rack travel in mm : 2.00 Speed rpm : 415...475 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 10.20...10.30 2nd speed rpm : 800 Rack travel in m: 11.10...11.20 3rd speed rpm : 900 Rack travel in m: 11.00...11.20 4th speed rpm : 1050 Rack travel in m: 10.50...10.70 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 800 Del.quantity cm3/ : 76.0...78.0 1000 s: (74.0...81.0) cm3 : 5.00 Spread 1000 s: (7.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.20 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 80.0...90.0 1006 s: (77.0...93.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 350 Speed Rack travel in mm : 6.10...6.70 Del.quantity cm3/: 10.0...12.0

1000 s: (7.0...15.0)

\$pread cm3 : 3.50 1000 s: (5.00)

Remarks:

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BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : 0-60-120-180-240-300 : KHD 6,1 M Phasing Edition : 29.01.88 Replaces Tolerance + - 0 : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 476 060 1st speed rpm: 1150 Injection pump Pump designation : PES6MW100/720RS1161 Rack travel in mm : 12.80...12.90 EP type number : 0 413 400 148 Del.quantity cm3/: 12.3...12.5 Governor Governor design.: RSV325...1150MW5A327 Governer no. : 0 420 085 084 100 s: (12.1...12.7) cm3 : 0.3Customer-spec. information Spread Customer 100 s: (0.6) Engine : BF6L913C rpm : 325.0 2nd speed : 134.0 Rack travel in mm: 4.9...5.0 Del.quantity cm3/: 1.0...1.4 1st version kW : 2300 Rated speed 100 s: (0.7...1.6) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. OC : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -3 : 1 417 413 000 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder assembly : 0 681 343 009 1st version rpm : 1150 Speed Aneroid pressure h: 1000 Opening : 123.0...125.0 1000 : (121.0...127.0) pressure, bar : 172**...**175 Del.quantity cm3 : 3.50 Spread : 1 680 750 014 1000 : (6.00) Test lines RATED SPEED Outside diameter x Wall thickness : 6.00x2.00x600 1st version x Length mm Control lever (A) Injection pump setting values position degrees: 52...60 Insp. values in parentheses Set equal delivery quant. Testing: per values ____ 1st račk travel in: 11.80 Speed rpm : 1200...1210 BEGINNING OF DELIVERY 2nd rack travel in: 4.00 rpm : 1245...1275 Test pressure, bar: 30...32 Speed

4th rack travel in: 1440

Speed

LOW IDLE 1

rpm : 0.30...1.70

Prestroke mm

: 3.45...3.55

Rack travel in mm : 9.00...12.00

: (3.40...3.60)

Control lever position degrees: 18...25 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 4.7 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed : 325 rpm Rack travel in mm : 4.70...4.80 Rack travel in mm : 2.00 rpm : 455...515 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 12.80...12.90 2nd speed rpm : 800 Rack travel in m: 13.20...13.30 3rd speed rpm : 900 Rack travel in m: 13.00...13.20 4th speed rpm : 1000 Rack travel in m: 12.80...13.00 Aneroid/Altitude Compensator Test 1st version Setting

Speed rpm : 500
Rack travel in mm : 500
Contr.-rod trav.mm: 11.60...11.70

Measurement Speed 1/min : 500

1st pressure hPa : 1000 Rack travel in m: 13.20...13.30 2nd pressure hPa : -Rack travel in m: 10,50...10.60 3rd pressure hPa : 650 Rack travel in m: 12.30...12.60

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1000 Speed : 800 rpm Del.quantity cm3/: 125.0...129.0 1000 s: (123.0...131.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 74.0...76.0 1000 s: (72.0...78.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.80 rpm : 1200...1210 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

LOW IDLE

rpm : 325 Speed Rack travel in mm : 4.90...5.00 Del.quantity cm3/ : 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50

Spread 1000 s: (5.50)

Remarks:

Note remarks

Test sheet : MB 5,8 A : 29.02.88 Edition Replaces

: ISO-4113 Test oil

: 9 400 083 259 Combination no.

Injection pump

Pump designation : PES6A90C410RS2308

Governor

Governor design. : RQV300...1425AB740L

Customer-spec. information

: DAIMLER-BENZ-BRAS. Customer

: 0M 352 Engine

: 95.7 1st version kW : 2850 Rated speed

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6,00x2,00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2,15...2,25 : (2,10...2,30) Prestroke mm

Rack travel in mm: 9,00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0,50(0,75) BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00...9,10

Del.quantity cm3/: 4,5...5,0

100 s: (4,3...5,2)

Spread cm3 : 0.3

100 s: (0,5)

rpm : 1000 2nd speed

Rack travel in mm: 11.90...12.10

Del.quantity cm3/: 7.3...8.2

100 s: (7.0...8.5)

Spread cm3: 0.4

100 s: (0.55)

3rd speed rpm: 200

Rack travel in mm : 8,90...9,10 Del.quantity cm3/: 2,05...2,85

100 s: (1,7...3,2) cm3 : 0,25 Spread

100 s: (0,45)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 61,0...63,0

1000 : (59,5...64,5)

: 3.0 cm3 Spread

1000 : (5,0)

RATED SPEED

1st version Control lever

position degrees: 62...70

Testing:

1st rack travel in: 17,70

rpm : 1425 Speed

2nd rack travel in: 16,70

rpm : 1465...1475 Speed

3rd rack travel in: 1,50...1,80 Speed rpm : 1650

4th rack travel in: 1780

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

rpm : 100 Minimum rack trave: 6,60

G20

Speed rpm: 250
Rack travel in mm: 5,50...7,00
Rack travel in mm: 5,00
Speed rpm: 330...370
Speed rpm: 770
Maximum rack trave: 1,00

START CUT-OUT

Speed 1/min: 220

BREAKAWAY

1st version

Speed rpm : 1425...1450

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 13,7...14,3

Remarks:

Note remarks

: MM 2,6 A Test sheet Edition : 29.02.88

Replaces

Test oil : ISO-4113

Combination no. : 9 400 083 422

Injection pump

Pump designation : PES3A80D320/3RS1264

Governor

Governor design. : RSV350...1200A2B627R

Customer-spec. information

Customer

: MMM

Engine

: D 225-3

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6,00x2,00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2,20...2,30 Prestroke mm

: (2,15...2,35) Rack travel in mm : 10,50

Firing order : 1-2-3

: 0-120-240 Phasing Tolerance + - 0 : 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference CS : 4...5

BASIC SETTING

rpm : 1000 1st speed

Rack travel in mm : 9,00...9,10

Del.quantity cm3/: 4,35...4,55

100 s: (4,15...4,75)

cm3 : 0,25 Spread

100 s: (0,40)

rpm : 1000 2nd speed

Rack travel in mm : 14,9...15,1 Del.quantity cm3/: 10,65...11,15

100 s: (10,35...11,45)

cm3 : 0.35Spread

100 s: (0,45) rpm : 200 3rd speed

Rack travel in mm : 8,90...9.10 Del.quantity cm3/ : 2,95...3,75

100 s: (2,7...4,0)

cm3 : 0.20Spread

100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm: 0,3...1,0

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1180 Speed

Del.quantity 5م,5...51 :

1000 : (49,0...53,0)

cm3 : 2,5 Spread

1000 : (4,0)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 15,00

Speed rpm : 1240...1250

3rd rack travel in: 4,40...7,00

rpm : 1340 Speed

4th rack travel in: 1500 Speed rpm : 0,30...1,50 LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6,00 Testing: Speed rpm : 100 Minimum rack trave: 19,00 Speed rpm: 350 Rack travel in mm: 5,70...6,30
Rack travel in mm: 2,30
Speed rpm: 480...520
Speed rpm: 650 Maximum rack trave: 1,50 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1180 Rack travel in m: -2nd speed rpm : 500 Rack travel in m: -3rd speed rpm : 400 Rack travel in m: +(1,2...2,8) BREAKAWAY 1st version Speed rpm : 1210...1230 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 9,0 LOW IDLE rpm : 350 Rack travel in mm : 5,90...6,10

Remarks:

Navy

APPLICATION

Note remarks

Test sheet : MMM 2,6 A 1 Edition : 29.02.88

Replaces Test oil

: ISO-4113

Combination no. : 9 400 083 423

Injection pump

Pump designation: PES3A80D320/3RS1264

Governor

Governor design.: RSV350...900A7B627R

Customer-spec. information Customer : MWM

: D-225-3 Engine

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6,00x2,00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

: 2,20...2,30 Prestroke mm

: (2,15...2,35)

Rack travel in mm: 10,50 Firing order : 1-2-3

: 0-120-240 Phasing Tolerance + - 0 : 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference O CS

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00...9,10

Del.quantity cm3/: 4,35...4,55

100 s: (4,15...4,75)

cm3 : 0,25 Spread

100 s: (0,40)

rpm : 1000 2nd speed

Rack travel in mm : 14,90...15,10 Del.quantity cm3/: 10,65...11,15

100 s: (10,45...11,35)

cm3 : 0.25Spread 100 s: (0,40) rpm : 200

3rd speed Rack travel in mm : 8,90...9,10

Del.quantity cm3/ : 2,95...3,75 100 s: (2,8...3,9)

cm3 : 0.20Spread 100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm: 0,3...0

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 880 Speed

: 51,5...52,5 Del.quantity 1000 : (50,0...54,0)

Spread

cm3 : 2.0 1000 : (3,5)

RATED SPEED

1st version Control lever

position degrees: 52...60

Testing:

1st rack travel in: 15,00 Speed rpm : 940...950 3rd rack travel in: 4,40...7,20

rpm : 960 Speed

4th rack travel in: 1050 rpm : 0,30...1,50 Speed LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6,00 Testing: Speed rpm : 100 Minimum rack trave: 19,00 Speed rpm: 350 Rack travel in mm: 5,70...6,30 Rack travel in mm: 2,80 Speed rpm: 430...470 rpm : 550 Speed Maximum rack trave: 1,50 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 880 Rack travel in m: -2nd speed rpm : 500 Rack travel in m: -3rd speed rpm : 400 Rack travel in m: +(1,20...1,80) BREAKAWAY 1st version Speed rpm : 900...920 STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 9,0 LOW IDLE rpm : 350 Rack travel in mm : 5,90...6,10

APPLICATION Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference O CS Note remarks BASIC SETTING Test sheet : MWM 3,4 B Edition : 29.02.88 Replaces rpm : 1000 1st speed Test oil : ISO 4113 Rack travel in mm : 9,00...9,10 Combination no. : 9 400 083 426 Del.quantity cm3/: 4,35...4,55 Injection pump Pump designation : PES4A80D320/3RS1265 100 s: (4,15...4,75) Governor Governor design. : RSV350...1200A2B627R Spread cm3 : 0,25 Customer-spec. information 40) s: (0,40) Customer : MM rpm : 1000 2nd speed Rack travel in mm : 14,90...15,10 Del.quantity cm3/: 10,65...11,15 : D 225-4 Engine TEST BENCH REQUIREMENTS 100 s: (10,35...11,45) cm3 : 0.35Spread 100 s: (0,45) rpm : 200 Overflow valve : 1 417 413 000 3rd speed Rack travel in mm : 8,90...9,10 Del.quantity cm3/: 2,95...3,75 Inlet press., bar: 1.0 100 s: (2,7...4,0) cm3 : 0.20Test nozzle holder Spread : 0 681 343 009 100 s: (0,35) assembly GUIDE SLEEVE POSITION Opening pressure, bar : 172...175 Control-lever position Degree: -3 rpm : 800 Speed Test lines : 1 680 750 014 Rack travel in mm: 0,3...1,0 Outside diameter Governor spring pre-tension x Wall thickness Click setting x :? : 6,00x2,00x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 1180 Set equal delivery quant. Speed Del.quantity : 50,5...51,5 per values _____ 1000 : (49,0...53,0) cm3 : 2,5 BEGINNING OF DELIVERY Spread 1000 : (4,0) Prestroke mm : 2,20...2,30 : (2,15...2,35)
Rack travel in mm : 10,50 RATED SPEED : 1-3-4-2 Firing order 1st version Control lever position degrees: 46...54 : 0-90-180-270 Testing: Phasing

1st rack travel in: 16,00

Speed

Speed rpm : 1240...1250

3rd rack travel in: 4,40...7,00 rpm : 1340

Tolerance + - 0

: 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

4th rack travel in: 1500 Speed rpm : 0,30...1,50 LOW IDLE 1 Control lever position degrees: 16...24 Setting point wout bumper spring rpm : 350 Rack travel in mm: 6,00 Testing: Speed : 100 rpm Minimum rack trave: 19,00 rpm : 350 Speed Rack travel in mm : 5,7...6,3
Rack travel in mm : 2,3
Speed rpm : 480...520 rpm Speed : 650 Maximum rack trave: 1,5 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1180 Rack travel in m: -2nd speed rpm : 500 Rack travel in m: -3rd speed rpm : 400 Rack travel in m: +(1,20...1,80) BREAKAWAY 1st version rpm : 1210...1230 Speed STARTING FUEL DELIVERY Speed rpm : 100

Del.quantity cm3/: 9,00

LOW IDLE

Speed rpm

Rack travel in mm : 5,90...6,10

Remarks:

APPLICATION Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MWM 3,4 B 1 Edition : 01.03.88 Replaces Test oil : ISO-4113 : 9 400 083 427 Combination no. Injection pump Pump designation : PES4A80D320/3RS1265 Governor Governor design.: RSV350...900A7B627R Customer-spec. information Customer : MMM : D-225-4 Engine TEST BENCH REQUIREMENTS Overflow valve : 1 417 413 000 Inlet press., bar: 1.0 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6,00X2,00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY : 2,20...2,30 Prestroke mm (2.15...2,35)
Rack travel in mm: 10,50
Firing order : 1-3-4-2 Firing order

: 0-90-180-270

: 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

& maximum rack tra: 21,00 Difference CS: 4...5 BASIC SETTING rpm : 1000 1st speed Rack travel in mm : 9,00...9,10 Del.quantity cm3/: 4,35...4,55 100 s: (4,15...4,75) cm3 : 0,25 Spread 100 s: (0,40) rpm : 1000 2nd speed Rack travel in mm : 14,90...15,10 Del.quantity cm3/: 10,65...11,15 100 s: (10.35...11,45) cm3 : 0,35 Spread 100 s: (0.45) rpm : 200 3rd speed Rack travel in mm : 8,90...9,10 Del.quantity cm3/: 2,95...3,75 100 s: (2,7...4,0) cm3 : 0.20Spread 100 s: (0,35) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm: 0,3...1,0 Governor spring pre-tension Click setting x :? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 880 Speed : 51,5...52,5 Del.quantity 1000 : (49,0...53,0) : 2,5 cm3 Spread 1000 : (4,0) RATED SPEED 1st version Control lever position degrees: 52...60 Testing: 1st rack travel in: 16,00 Speed rpm : 940...950 3rd rack travel in: 960 rom: 4,40...7,20 Speed

betw. rack trav. m: 10,50

Phasing

Tolerance + - 0

4th rack travel in: 1050 Speed LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6,00 Testing: : 100 Speed rpm Minimum rack trave: 19,00 Speed rpm: 350
Rack travel in mm: 5,70...6,30
Rack travel in mm: 2,80 rpm : 430...470 Speed rpm : 550 Speed Maximum rack trave: 1,50 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 880 Rack travel in m: -2nd speed rpm : 500 Rack travel in m: -3rd speed rpm : 450 Rack travel in m: +(1,20...1,80) BREAKAWAY 1st version rpm : 900...920 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 9,00 LOW IDLE rpm : 350 Speed Rack travel in mm : 5,90...6,10

Remarks:

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : MWM 5,1 A : 01.03.88 Edition

Replaces Test oil

: ISO-4113

Combination no. : 9 400 083 429

Injection pump

Pump designation : PES6A80D320/3RS1261

Governor

Governor design. : RSV350...900A7B627R

Customer-spec. information Customer : MAM

Engine : D-225-6

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6,00x2,00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Prestroke mm : 2,20...2,30

: (2,15...2,35) Rack travel in mm : 10,50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference O CS

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm: 9,00

Del.quantity cm3/: 4,35...4,55

100 s: (4,15...4,75)

Spread cm3 : 0,25

100 s: (0,40)

2nd speed rpm : 1000

Rack travel in mm : 14,90...15,10 Del.quantity cm3/: 10,65...11 100 s: (10,35...11,45) cm3 : 0,35

Spread

100 s: (0,45) rpm : 200 3rd speed

Rack travel in mm : 8,90...9.10
Del.quantity cm3/: 2,95...3,75
100 s: (2,7...4,0)
Spread cm3 : 0,20

100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm: 0,3...1,0

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 880 Speed

Del.quantity : 51,5...52,5 1000 : (49,0...53,0) Spread cm3 : 2,5

1000 : (4.0)

RATED SPEED

1st version Control lever

position degrees: 52...60

Testing:

1st rack travel in: 16,00 rpm : 940...950 Speed 3rd rack travel in: 4,40...7,20

rpm : 960 Speed

4th rack travel in: 1050 Speed rpm : 0,30...1,50 LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm: 6,00 Testing: Speed rpm : 100 Minimum rack trave: 19,00 Speed rpm: 350
Rack travel in mm: 5,70...6,30
Rack travel in mm: 2,80
Speed rpm: 450 rpm : 550 Speed Maximum rack trave: 1,50 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 880 Rack travel in m: -2nd speed rpm : 500 Rack travel in m: -3rd speed rpm : 450 Rack travel in m: +(1,20...1,80) BREAKAWAY 1st version Speed rpm : 900...920 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 9,00 LOW IDLE Speed rpm Rack travel in mm : 5,90...6,10

Remarks:

APPLICATION

VDT-I-420/112.

Governor setting according to

Note remarks

: MWM 5_1 A 1 Test sheet Edition : 01.03.88

Replaces

Test oil : ISO-4113

Combination no. : 9 400 083 430

Injection pump

Pump designation : PES6A80D320/3RS1261

Governor

Governor design.: RSV350...1200A2B627R

Customer-spec. information

Customer : MAM

Engine : D 225-6

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,20...2,30 : (2,15...2,35)
Rack travel in mm : 10,50 firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference OCS : 4...5

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 9,00...9,10

Del.quantity cm3/: 4,35...4,55

100 s: (4,15...4,75)

cm3 : 0,25Spread

100 s: (0,40)

rpm : 1000 2nd speed

10, Rack travel in mm : 14,90...15 Del.quantity cm3/: 10,65...11,15

100 s: (10,35...11,45) cm3 : 0,35

Spread

100 s: (0,45) rpm : 200 3rd speed

Rack travel in mm : 8,90...9,10

Del.quantity cm3/: 2,95...3,75 100 s: (2,7...4,0)

cm3 : 0.20Spread 100 s: (0,35)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm: 0,3...1,0

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1180 Speed

: 50,50...51,50 Del.quantity

1000 : (48,50...53,50)

: 2,5 Spread cm3

1000 : (4,0)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 16,00

Speed rpm : 1240...1250 3rd rack travel in: 4,40...7,00

Speed rpm : 1340 4th rack travel in: 1500 Speed rpm : 0,30...1,50

LOW IDLE 1 Control lever

position degrees: 16...24

Setting point w/out bumper spring rpm : 350°

Rack travel in mm: 6,00

Testing:

Speed rpm : 100 Minimum rack trave: 19,00

Speed rpm: 350
Rack travel in mm: 5,70...6,30
Rack travel in mm: 2,30

Speed rpm : 480...520 Speed rpm : 650 Maximum rack trave: 1,50

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180 Rack travel in m: -2nd speed rpm : 500 Rack travel in m: -

3rd speed rpm : 400

Rack travel in m: +(1,20...1,80)

BREAKAWAY

1st version

rpm : 1210...1230 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Deliquantity cm3/: 9,00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 5,90...6,10

Remarks:

APPLICATION

Navy

Note remarks

: MB 5.7 N 15 : 02.03.88 Test sheet Edition

Replaces

: ISO 4113 Test oil

: 9 400 084 239 Combination no.

Injection pump

Pump designation : PES6A90D410RS2239

Governor

Governor design. : RQV300...1425AB758L

Customer-spec. information

Customer : DAIMLER-BENZ-BRAS.

: OM 352 Engine

: 95.70 1st version kW : 1850 Rated speed

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Open in a

pressure, bar : 172...175

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 25,...25,25 Prestroke mm : (2,10...2,30)

Rack travel in mm: 9,00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0,50 (0,75)

H06

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 9,00...9.10

Del.quantity cm3/: 4,5...5,0

100 s: (4,3...5,2)

Spread cm3 : 0.3

100 s: (0,5)

rpm : 1000 2nd speed

Rack travel in mm : 11,90...12,10 Del.quantity cm3/ : 7,3...8,2

100 s: (7,0...8,5)

cm3 : 0.4Spread

100 s: (0,55)

rpm : 200 3rd speed

Rack travel in mm : 8,90...9,10 Del.quantity cm3/: 2,05...2,85 100 s: (1,7...3,2) Spread cm3: 0,25

100 s: (0,45)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

: 61,0...63,0 Del.quantity

1000 : (59,5...64,5) cm3 : 3,0

cm3 Spread

1000 : (5,0)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 17,70

rpm : 1425 Speed 2nd rack travel in: 16,70

rpm : 1465...1475 Speed

3rd rack travel in: 1,50...1,80 Speed rpm : 1650

4th rack travel in: 1780

rpm : 0,00...1,00 Speed

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

rpm : 100

Minimum rack trave: 6,60

Speed rpm: 250
Rack travel in mm: 5,50...7,00
Rack travel in mm: 5,00
Speed rpm: 330...370
Speed rpm: 770
Maximum rack trave: 1,00

START CUT-OUT

Speed 1/min: 220

BREAKAWAY

1st version

Speed rpm : 1425...1450

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 13,70...14,30

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : MB 5,9 I 9 : 01.03.88 Edition

Replaces Test oil : ISO 4113

: 9 400 084 241 Combination no.

Injection pump

Pump designation : PES6A80D410RS2085Y

Governor

Governor design. : RSV575...1100A1B629D

Customer-spec. information

Customer : DAIMLER-BENZ-BRAS.

: OM 352 Engine

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25 : (2.10...2,30) Rack travel in mm : 9.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0,50(0,75)

BASIC SETTING

HO8

1st speed rpm: 1000

Rack travel in mm : 9,00...9,10

Del.quantity cm3/: 4,35...4,85

100 s: (4,15...5)

cm3 : 0.40Spread

100 s: (-)

rpm : 1000 2nd speed

Rack travel in mm : 14,90...15,10

Del. quantity cm3/: 10,25...11,65 100 s: (9,95...11,95) Spread cm3: 0,35 100 s: (0,45)

rpm : 200 3rd speed

Rack travel in mm : 8,90...9,10 Del.quantity cm3/: 2,45...3,45

100 s: (2,2...3,7)

cm3 : 0,20 Spread

100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm: 0,3...0

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1080 Speed

Del.quantity : 53,5...54,5 1000 : (52,0...56,0)

Spread . cm3

: 2,5 : (4,0) 1000

RATED SPEED

1st version

Control lever

position degrees: 53...61

Testing:

1st rack travel in: 16,00

rpm : 1140...1150 Speed 3rd rack travel in: 4,20...7,40

Speed rpm : 1190 4th rack travel in: 1340

rpm : 0,30...1,00 Speed

LOW IDLE 1

Control lever

position degrees: 28...36 Setting point w/out bumper spring Speed rpm : 575 Rack travel in mm : 7,00 Testing: Speed rpm : 100 Minimum rack trave: 19,00 : 575 rpm Rack travel in mm : 6,70...7,30 Rack travel in mm : 4,00 Speed rpm : 650 : 800 Speed rpm Maximum rack trave: 1,0 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1080 Rack travel in m: -2nd speed rpm : 900 Rack travel in m: +(0,10...0,30) 3rd speed rpm : 650 Rack travel in m: +(0,30...0,50) FUEL DELIVERY CHARACTERISTICS 1st version : 800 Speed rpm Del.quantity cm3/: 53,0...55,0 1000 s: (51,0...57,0) cm3 : 3,5 1000 s: (4,5) Spread : 500 Speed rpm Del.quantity cm3/: 48,5...50,5 1000 s: (46,5...52,5) cm3 : 3,5 Spread 1000 s: (4,5) BREAKAWAY 1st version rpm : 1110...1130 Speed STARTING FUEL DELIVERY rpm : 100 Speed Rack travel in mm : 14,20...14,80 LOW IDLE : 575 Speed rpm Rack travel in mm : 6,90...7,10 Remarks:

Note remarks

Test sheet : MB 5.7 I 10 : 01.03.88 Edition

Replaces Test oil

: ISO 4113

Combination no.

: 9 400 084 244

Injection pump

Pump designation : PES6A80D410RS2085Y

Governor

Governor design.: RSV350...900A7B638L

Customer-spec. information

: DAIMLER-BENZ-BRAS. Customer

Engine

: 0M 352

1st version kW

: 63

Rated speed

: 1800

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6,00X2,00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2,15...2,25 Prestroke mm

: (2,10...2,30) Rack travel in mm : 9,00

: 1-5-3-6-2-4 firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 6 : 0,50(0,75)

H10

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 9,60...9,70

Del.quantity cm3/: 5,10...5,20

100 s: (4,90...5,40)

Spread cm3 : 0.25

100 s: (0,40)

rpm : 350 2nd speed

Rack travel in mm: 7,40...7,60

Del.quantity cm3/: 1,65...1,95

100 s: (1,35...2,25)

Spread cm3: 0,20

100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm: 0,3...1,0

Governor spring pre-tension

Click setting x : 6,0

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

: 51,0...52,0 Del.quantity

1000

: (49,5...53,5) : 2,0 : (3,5) cm3 Spread 1000

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 8,60

rpm : 940...950 Speed

2nd rack travel in: 4,00

rpm : 960...990 Speed

3rd rack travel in: 0,30...1,70

: 1050 Speed rpm

LOW IDLE 1

Control lever

position degrees: 24...32

Setting point w/out bumper spring

: 350 rpm

Rack travel in mm: 7,00

Speed rpm: 350
Rack travel in mm: 7,40...7,60
Rack travel in mm: 2,00
Speed rpm: 420...480
Speed rpm: 550
Maximum rack trave: 1,0

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 9,60...9,70

2nd speed rpm: 500
Rack travel in m: 9,60...9,70
3rd speed rpm: 400

Rack travel in m: 10,80...11,40

BREAKAWAY

1st version

Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 73,0...83,0

LOW IDLE

Speed rpm: 350

Rack travel in mm : 6,90...7,10

Remarks:

APPLICATION Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 5,7 I 11 : 01.03.88 Edition Replaces : ISO 4113 Test oil : 9 400 084 245 Combination no. Injection pump Pump designation : PES6A80D410RS2085Y Governor Governor design.: RSV550...1125A1B638L Customer-spec. information Customer : DAIMLER-BENZ-BRAS. Engine : OM 352 TEST BENCH REQUIREMENTS Overflow valve : 1 417 413 000 Inlet press., bar: 1.0 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6,00X2,00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25 : (2,10...2,30) Rack travel in mm: 9,60 : 1-5-3-6-2-4

Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0,50(0,75)

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 9,00...9,10

Del.quantity cm3/: 4,35...4,85

100 s: (4,15...5,05)

Spread cm3 : 0.30

100 s: (-)

2nd speed rpm : 1000

Rack travel in mm : 14,90...15,10 Del.quantity cm3/: 10,25...11,65

100 s: (9,95...11,95) cm3 : 0,35 Spread

100 s: (0.45) rpm : 200 3rd speed

Rack travel in mm : 8,90...9,10 Del.quantity cm3/ : 2,45...3,45

100 s: (2,2...3,7) cm3 : 0,2 Spread 100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rom : 800 Speed

Rack travel in mm: 0,3...1,0

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Del.quantity : 48,5...49,5 1000 : (47,0...51,0)

cm3 : 2,5 Spread

1000 : (4,0)

RATED SPEED

1st version Control lever

position degrees: 53...61

Testing:

1st rack travel in: 16,00

rpm : 1140...1150 Speed 3rd rack travel in: 4,40...6,20

rpm : 1180 Speed 4th rack travel in: 1300

rpm . 0,00...1,00

LOW IDLE 1 Control lever

position degrees: 26...34

Setting point w/out bumper spring

Speed rpm : 550 Rack travel in mm: 7,50

Testing:

Speed rpm: 100
Minimum rack trave: 19,00
Speed rpm: 550
Rack travel in mm: 7,20...7,80
Rack travel in mm: 4,40

rpm : 600 Speed : 720 Speed rpm Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version 1st speed rpm : 1100

Rack travel in m: -2nd speed rpm : 850 Rack travel in m: -3rd speed rpm : 650

Rack travel in m: +(1,20...1,80)

BREAKAWAY

1st version

Speed rpm : 1130...1150

STARTING FUEL DELIVERY

: 100 rpm

Rack travel in mm: 14,20...14,80

LOW IDLE

Speed rpm: 550 Rack travel in mm: 7,40...7,60

Remarks:

APPLICATION Compressor

Note remarks

: MB 5,7 M 8 Test sheet Edition : 01.03.88

Replaces Test oil

: ISO 4113

Combination no. : 9 400 084 250

Injection pump

Pump designation : PES6A80D410RS2085Y

Governor

Governor design. : RSV350...1000A1B1047

DL

Customer-spec. information

: DAIMLER-BENZ-BRAS. Customer

Engine : 0M-352

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

: 2,15...2,25 : (2,10...2,30) Prestroke mm

Rack travel in mun: 9,00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0,50(0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00...9,10

Del.quantity cm3/: 4,35...4,85

100 s: (4,15...5)

cm3 : 0.3Spread

100 s: (-)

rpm : 1000 2nd speed

Rack travel in mm : 14,90...15,10 Del.quantity cm3/: 11,25...11,85

100 s: (10,95...12,15)

cm3 : 0.35Spread 100 s: (0,45)

rpm : 200

3rd speed Rack travel in mm : 8,90...9,10 Del.quantity cm3/ : 2,45...3,45

100 s: (2,2...3,7)

cm3 : 0,20 Spread 100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm: 0,3...1,0

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 980 Speed

: 56,0...57,0 Del.quantity 1000 : (54,5...58,5)

: 2,5 Spread cm3 1000 : (4,0)

RATED SPEED

1st version

Control lever

position degrees: 51...59

Testing:

1st rack travel in: 16,00

rpm : 1040...1050 Speed 3rd rack travel in: 3,80...6,00

rpm : 1180 Speed 4th rack travel in: 1230

rpm : 0,00...1,00 Speed

LOW IDLE 1

Control lever

position degrees: 24...32 Setting point w/out bumper spring : 350 Speed Lbw Rack travel in mm: 7,50 Testing: Speed rpm : 100 Minimum rack trave: 19,00 rpm : 350 Speed Rack travel in mm : 7,40...7,60 Rack travel in mm : 2,50 Speed rpm : 530...570 : 650 Speed rpm Maximum rack trave: 1,00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: -2nd speed rpm : 800 Rack travel in m: +(0,30...0,50) 3rd speed rpm : 500 Rack travel in m: +(0,70...0,90) FUEL DELIVERY CHARACTERISTICS 1st version : 800 Speed rpm Del.quantity cm3/: 57,0...59,0 1000 s: (55,0...61,0) cm3 : 3,5 Spread 1000 s: (4,5) : 500 Speed rpm Del.quantity cm3/: 57.5...59.5 1000 s: (55.5...61.5) cm3 : 3,5 Spread 1000 s: (4,5) BREAKAWAY 1st version : 1010...1030 rpm Speed STARTING FUEL DELIVERY : 100

Speed

Remarks:

rpm Rack travel in mm : 14,2...14,8

Note remarks

: MB 3,8 I 3 Test sheet Edition : 01.03.88

Replaces Test oil

: ISO 4113

: 9 400 084 260 Combination no.

Injection pump

Pump designation : PES4A80D410RS2094Z

Governor

: RSV350...1000A1B1047 Governor design.

Customer-spec. information

Customer : DAIMLER-BENZ-BRAS.

: OM 314 Engine

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25

: (2,10...2,30)
Rack travel in man: 9,00

Firing order : 1-3-4-2

: 0-90-180-270 Phasing Tolerance + - 0 : 0,50(0,75)

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 9,00...9,10

Del.quantity cm3/: 4,35...4,85

100 s: (4,15...5,05)

Spread cm3 : 0.40

100 s: (-)

rpm : 1000 2nd speed

Rack travel in mm: 14,90...15,10
Del.quantity cm3/: 10,25...11,65
100 s: (9,95...11,95)
Spread cm3: 0,35
100 s: (0,45)

rpm : 200 3rd speed

Rack travel in mm : 8,90...9,10 Del.quantity cm3/: 2,45...3,45

100 s: (2,2...3,7)

Spread cm3 : 0,2

100 s: (0,35)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

Speed rpm : 800

Rack travel in mm: 0,3...0

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 980 Speed

: 46,5...47,5 1000 : (45,0...49,0) Del.quantity

cm3 : 2,5 Spread

: (4,0) 1000

RATED SPEED

1st version

Control lever

position degrees: 51...59

Testing:

1st rack travel in: 16,00

Speed rpm : 1040...1050 3rd rack travel in: 3,80...6,00

rpm : 1120 Speed 4th rack travel in: 1230

: 0,00...1,00 Speed rpm

LOW IDLE 1

Control lever

H16

position degrees: 24...32 Setting point Wout bumper spring

Speed rpm : 350 Rack travel in mm: 7,50

Testing:

Speed rpm : 100 Minimum rack trave: 19,00 rpm : 350 Speed

Rack travel in mm: 7,40...7,60 Rack travel in mm: 2,50 rpm : 550 Speed Speed rpm : 650 Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000 Rack travel in m: -2nd speed rpm : 800

Rack travel in m: +(0,30...0,50)

3rd speed rpm : 500 Rack travel in m: +(0,80...1,00)

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 800 Speed Del.quantity cm3/: 46,0...48,0 1000 s: (44,0...50,0)

cm3 : 3,5Spread

1000 s: (4,5) : 500 Speed rpm

Del.quantity cm3/: 46,0...48,0 1000 s: (44,0...50,0)

BREAKAWAY

1st version

rpm : 1010...1030 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Rack travel in mm : 14,20...14,80

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 5.7 I 13 : 03.03.88 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 9 400 084 299 Injection pump Pump designation : PES6A800410RS2085Y Governor : RSV350...1100A1B735D Governor design. Customer-spec. information Customer : DAIMLER-BENZ-BRAS. Engine : OM 352 TEST BENCH REQUIREMENTS Overflow valve : 1 417 413 000 Inlet press., bar: 1.0 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6,00X2,00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY

: 2,15...2,25 Prestroke mm : (2,10...2,30)
Rack travel in man: 9,00

Firing order : 1-5-3-6-2-4

: 1-60-120-180-240-300 Phasing

Tolerance + - 0 : 0,50(0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00...9,10

Del.quantity cm3/: 4,35...4,85

100 s: (4,15...5)

cm3 : 0.25Spread

100 s: (0,40)

rpm : 1000 2nd speed

Rack travel in mm : 14,90...15,10

Del.quantity cm3/: 10,25...11,65

100 s: (9,95...11,95)

Spread cm3: 0,35

100 s: (0,45) rpm : 200 3rd speed

Rack travel in mm : 8,90...9,10 Del.quantity cm3/ : 2,45...3,45

100 s: (2,2...3,7)

cm3 : 0,2 Spread 100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm : 800

Rack travel in mm: 0,3...1,0

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1080 Speed

: 56,0...57,0 Del.quantity 1000 : (54,5...58,5)

: 2,5 cm3 Spread : (4,0) 1000

RATED SPEED

1st version Control lever

position degrees: 51...59

Testing:

1st rack travel in: 16,00

Speed rpm : 1040...1050 3rd rack travel in: 3,30...5,40

Speed rpm : 1210 4th rack travel in: 1310

: 0,00...1,00 Speed rom

LOW IDLE 1 Control lever

H18

position degrees: 19...27 Setting point w/out bumper spring Speed : 350 rpm Rack travel in mm: 7,50 Testing: Speed Lbw : 100 Minimum rack trave: 19,00 : 350 Speed rpm Rack travel in mm : 7,30...7,70 Rack travel in mm: 3,10 : 530...570 Speed Lbw Speed rpm : 660 Maximum rack trave: 1,00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: -2nd speed rpm : 1000 Rack travel in m: -3rd speed rpm : 800 Rack travel in m: +(0.40...0.60)4th speed rpm : 500 Rack travel in m: +(0.80...1.40)FUEL DELIVERY CHARACTERISTICS 1st version : 800 Speed rpm Del.quantity cm3/: 55.0...57.0 1000 s: (53.0...59.0) cm3 : 3,5 Spread 1000 s: (4,5) : 500 Speed rpm Del.quantity cm3/: 54.0...56.0 1000 s: (52.0...58.0) cm3 : 3,5 Spread 1000 s: (4,5) BREAKAWAY 1st version rpm : 1105...1130 Speed STARTING FUEL DELIVERY : 100 Speed rpm Rack travel in mun: 14,20...14,80 LOW IDLE : 350 Speed rpm Rack travel in mm: 7,40...7,60

Remarks:

Note remarks

: DEE 7,6 m Test sheet Edition : 07.86

Replaces

Test oil : ISO-4113

Combination no. : 9 400 230 022

Injection pump

Pump designation : PES6A1000410RS3032

Governor

Governor design. : RSV400...1100A2B2086

Customer-spec. information

Customer : JOHN DEERE

Engine : 6466T

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 413 385 007

Inlet press., bar: 1.5

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter

x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 1,95...2,05 Prestroke mm

: (1,90...2,10)

Rack travel in mm: 21,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0,50 (0,75)

H20

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm: 11,45

Del.quantity cm3/: 10,9...11,1

Spread cm3 : 0,3

2nd speed rpm : 400 Rack travel in mm: 6,80

Del.quantity cm3/: 1,3...1,7

cm3 : 0.4Spread

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm: 0,3...0

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 1200

Del.quantity

RATED SPEED

1st version

Control lever

position degrees: 35...43

Testing:

1st rack travel in: 10,45

Speed rpm : 1145...1155

2nd rack travel in: 4,00

Speed rpm : 1195...1225

4th rack travel in: 1250

Speed 70, 1...30 rpm : 0,30...1

LOW IDLE 1

Control lever

position degrees: 14...20

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 6,30

Testing:

rpm : 100 Speed Minimum rack trave: 19,00 Speed rpm: 400

Rack travel in mm: 6,80

Rack travel in mm : 2,00 Speed rpm : 460...520

Speed : 600 rpm Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 11.40...11.50
2nd speed rpm : 1000

Rack travel in m: 11,35...11,65 3rd speed rpm : 750

Rack travel in m: 12,75...12,95

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Rack travel in mm : 420

Contr.-rod trav.mm: 12,75...12,85

Measurement

1/min: 500 Speed

1st pressure hPa : 200

Rack travel in m: 11,10...11,50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 грт : 650 Speed

Del.quantity cm3/: 126_0...129_0

: 500 Speed rpm

Del.quantity cm3/: 78,5...81,5

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 5,7 N 20 Test sheet Edition : 03.03.88 Replaces Test oil : ISO-4113 Combination no. : 9 407 083 211 Injection pump Pump designation : PES6A90D410RS2293 Governor : RSV350...1050A1B1086 Governor design. Customer-spec. information : DAIMLER-BENZ-BRAS. Customer Engine : OM 352 A TEST BENCH REQUIREMENTS Overflow valve : 1 417 413 000 Inlet press., bar: 1.0 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6,00X2,00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY : 2,15...2,25 : (2,10...2,30) Prestroke mm Rack travel in min: 9,00

: 1-5-3-6-2-4

: 0,50(0,75)

: 0-60-120-180-240-300

Del.quantity cm3/: 4,5...5,0 100 s: (4,3...5,2) Spread cm3 : 0.25100 s: (0,40) rpm : 1000 2nd speed Rack travel in mm: 11.90...12.10
Del.quantity cm3/: 7.3...8.2
100 s: (7.0...8.5)
Spread cm3: 0.35 100 s: (0,45) rpm : 200 3rd speed Rack travel in mm : 8,90...9,10 Del.quantity cm3/: 2,05...2,85 100 s: (1,8...3,1) cm3 : 0,2 Spread 100 s: (0,35) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm: 0,3...1,0 Governor spring pre-tension Click setting x :? FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1030 Del.quantity : 44,0...45,0 1000 : (42,0...47,0) cm3 : 2,5 Spread 1000 : (4,0) RATED SPEED 1st version Control lever position degrees: 58...66 Testing: 1st rack travel in: 16,00 rpm : 1150 Speed 3rd rack travel in: 3,20...6,00 rpm : 1190 Speed 4th rack travel in: 1340 rpm : 0,00...1,00 Speed LOW IDLE 1

Control lever

1st speed

rpm: 1000

Rack travel in mm : 9,00...9,10

H22

Phasing

Firing order

Tolerance + - 0

BASIC SETTING

position degrees: 25...33 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 7,50 Testing: Speed rpm : 100 Minimum rack trave: 19,00 Speed rpm: 350 Rack travel in mm: 7,30...7,70 Rack travel in mm : 2,80 Speed : 600 rpm rpm : 720 Speed 00ر Maximum rack trave: 1 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1030 Rack travel in m: -2nd speed rpm : 800 Rack travel in m: +(1,20...1,40) 3rd speed rpm : 500 Rack travel in m: +(2,30...2,70) 4th speed rpm : 400 Rack travel in m: +(2,30...2,80) FUEL DELIVERY CHARACTERISTICS 1st version : 800 Speed rpm Del.quantity cm3/: 50.5...52.5 1000 s: (48.0...55.0) cm3 : 4.0 1000 s: (5.5) Spread Speed : 500 rpm Del.quantity cm3/ : 57,0...59,0 1000 s: (54,5...61,5) Spread cm3 : 4,0 1000 s: (5,5) BREAKAWAY 1st version rpm : 1060...1080 Speed STARTING FUEL DELIVERY Speed rpm : 100 Rack travel in mm: 13,70...14,30

BOSCH INJ. PUMP TEST SPECIFICATIONS rpm: 1200 1st speed Note remarks Rack travel in mm : 12,60...12,70 : FIA 8,1 A Test sheet Del.quantity cm3/: 7,15...7,35 Edition : 03.03.88 Replaces 100 s: (6,90...7,60) Test oil : ISO-4113 Spread cm3 : 0.3Combination no. : 9 407 083 233 100 s: (0,5) Injection pump rpm : 275 Pump designation : PES6A90D410RS2482 2nd speed Rack travel in mm : 8,30...8,50 Del.quantity cm3/: 0,5...0,9 Governor Governor design. : RQ275/1200AB1027DL 100 s: (0,2...0,6) cm3 : 0,25Customer-spec. information Spread 100 s: (0,45) Customer : FDB Engine : 8360 GUIDE SLEEVE POSITION Control-lever position TEST BENCH REQUIREMENTS Degree: -1 rpm : 900 Speed Overflow valve Rack travel in mm: 14,20...15,00 : 1 417 413 000 FULL LOAD DELIV. AT FULL LOAD STOP Inlet press., bar : 1.0 1st version rpm : 1200 Test nozzle holder Speed assembly : 0 681 343 009 5, 73, 73 : Del.quantity 1000 : (69,5...74,5) cm3 : 3.0 1000 : (5.0) Opening Spread pressure, bar : 172...175 RATED SPEED Test lines : 1 680 750 014 1st version Outside diameter x Wall thickness Setting point: : 6,00x2,00x600 x Length mm Speed rpm : 900 Rack travel in mm: 14,6 (A) Injection pump setting values Insp. values in parentheses Testing: Set equal delivery quant. 1st rack travel in: 11,60 Speed rpm : 1245...1260 per values 2nd rack travel in: 4,00 Speed rpm : 1350...1380 BEGINNING OF DELIVERY 3rd rack travel in: 0,00...1,00 Prestroke mm : 2,15...2,25 Speed rpm : 1500 : (2,10...2,30) Rack travel in mm : 9,60 LOW IDLE 1 Setting point w/out bumper spring : 1-5-3-6-2-4 firing order

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0,50(0,75)

BASIC SETTING

Testing: rpm : 100 Speed Minimum rack trave: 7,30 : 275 rpm

Rack travel in mm: 5,80

Rack travel in mm : 5,70...5,90

rpm : 275

Rack travel in mm : 2,00
Speed rpm : 420...480
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1200

Rack travel in m: 12,60...12,70 2nd speed rpm : 700 Rack travel in m: 13,10...13,40

3rd speed rpm : 500
Rack travel in m: 13,45...13,55

FUEL DELIVERY CHARACTERISTICS

1st version Speed rpm : 700 Del.quantity cm3/ : 68,0...70,0 1000 s: (65,5...72,5) Spread cm3 : 4,0 1000 s: (5,5)

Speed rpm : 500 Del.quantity cm3/: 65,5...67,5

1000 s: (63,0...70,0)

Spread cm3 : 4,0 1000 s: (5,5)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11,60 Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 100,0...110,0 1000 s: (97,0...113,0)

BOSCH INJ. PUMP TEST SPECIFICATIONS rpm: 1200 1st speed Note remarks Rack travel in mm : 10,85...10,95 Test sheet : FIA 4,6 C Del.quantity cm3/: 6,5...6,6 : 03.03.88 Edition Replaces 100 s: (6,25...6,85) Test oil : ISO-4113 Spread cm3 : 0.30Combination no. : 9 407 083 234 100 s: (0,50) Injection pump rpm : 300 Pump designation : PES4A90D410RS2548 2nd speed Rack travel in mm: 7.90...8.10 Governor Governor design. : RQ300/1200AB1028L Del.quantity cm3/: 0,70...1.10 100 s: (0,30...0,70) Customer-spec. information cm3 : 0,25 Spread Customer : FDB 100 s: (0,45) Engine : 8340 GUIDE SLEEVE POSITION Control-lever position Degree: -1 TEST BENCH REQUIREMENTS rpm : 600 Speed Overflow valve Rack travel in mm : 15,60...16,40 : 1 417 413 000 FULL LOAD DELIV. AT FULL LOAD STOP Inlet press., bar: 1.0 1st version Test nozzle holder rpm : 1200 Speed : 0 681 343 009 : 65,0...66,0 assembly Del.quantity 1000 : (63,0...67,0) cm3 : 3,0 Opening Spread pressure, bar : 172...175 1000 : (5,0) RATED SPEED Test lines : 1 680 750 014 1st version Outside diameter x Wall thickness Setting point: rpm x Length mm : 6,00X2,00X600 Speed Rack travel in mm: 16,0 (A) Injection pump setting values Insp. values in parentheses Testing: 1st rack travel in: 9,90 Speed rpm : 1245...1260 Set equal delivery quant. per values ____ 2nd rack travel in: 4,00 rpm : 1365...1395 BEGINNING OF DELIVERY Speed 3rd rack travel in: 0,00...1,00 : 1500 Prestroke mm : 2,15...2,25 Speed rpm : (2,10...2,30) Rack travel in mm : 9,60 LOW IDLE 1 : 1-3-4-2 Setting point w/out bumper spring Firing order Speed rpm : 300 Rack travel in mm : 6,00 : 0-90-180-270 Testing: Phasing Tolerance + - 0 : 0,50(0,75) Speed rpm : 100 Minimum rack trave: 7,50 rpm : 300 BASIC SETTING

Rack travel in mm : 5,90...6,10

Rack travel in mm: 2,00 Speed rpm: 450...490 rpm : 600 Speed Maximum rack trave: 1,00 TORQUE CONTROL Torque control curve - 1st version rpm : 1200 1st speed Rack travel in m: 10,85...10,95 : 710 2nd speed rpm Rack travel in m: 11,30...11,60 3rd speed rpm : 630 Rack travel in m: 11,75...11,85 FUEL DELIVERY CHARACTERISTICS 1st version : 900 Speed rpm Del.quantity cm3/: 59.0...61.0 1000 s: (56.5...63.5) cm3 : 4.0 1000 s: (5.5) Spread Speed rpm : 500 Del.quantity cm3/ : 63.0...65.0 1000 s: (60,5...67,5) cm3 : 5,5 Spread 1000 s: (4,0) RACK STOP ADJUSTMENT Speed rpm : 600 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9,90 Speed rpm : 1245...1260 STARTING FUEL DELIVERY

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 5.7 I 12 : 03.03.88 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 9 407 083 244 Injection pump Pump designation : PES6A80D410RS2085Y Governor Governor design. : RSV350...1200A1B1125 Customer-spec. information Customer : DAIMLER-BENZ-BRAS. Engine : OM 352 TEST BENCH REQUIREMENTS Overflow valve : 1 417 413 000 Inlet press., bar: 1.0 Test nozzle holder : 0 681 343 009 assembly Opening. : 172...175 pressure, bar Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6,00X2,00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY : 2,15...2,25 Prestroke mm : (2,10...2,30) Rack travel in run: 9,00 : 1-5-3-6-2-4

Firing order : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0,50(0,75) BASIC SETTING H28

rpm: 1200 1st speed Rack travel in mm : 7,00...7,10 Del.quantity cm3/: 3,35...3,45 100 s: (3,15...3,65) Spread cm3 : 0.25100 s: (0,40) rpm : 350 2nd speed Rack travel in mm : 6,90...7,10 Del.quantity cm3/: 1,45...1.75 100 s: (1,15...2,05) Spread cm3: 0,20 100 s: (0,35) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm: 0,3...1,0 Governor spring pre-tension Click setting x : 4,3 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1200 : 33,5...34,5 Del.quantity 1000 : (32,0...36,0) cm3 : 2.5 Spread 1000 : (4,0) RATED SPEED 1st version Control lever position degrees: 63...71 Testing: 1st rack travel in: 6,00 rpm : 1240...1250 Speed 2nd rack travel in: 4,00 rpm : 1255...1285 Speed 3rd rack travel in: 0,30...1,70 : 1400 Speed rpm LOW IDLE 1 Control lever position degrees: 26...34 Setting point w/out bumper spring : 350 rpm Rack travel in mm: 7,00 Testing:

: 100 Speed rpm Minimum rack trave: 19,00 : 350 Speed rpm Rack travel in mm : 7,40...7,60 Rack travel in mm: 2,00 Speed rpm: 570...630 Speed rpm: 800

rpm Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200 Rack travel in m: 7,00...7,10

: 800 2nd speed rpm

Rack travel in m: 7,40...7,70 : 500 3rd speed rpm

Rack travel in m: 8,50...8,60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del.quantity cm3/: 31.5...33.5 1000 s: (29.5...35.5) Spread cm3 : 3.5

1000 s: (4,5)

Speed rpm: 500
Del.quantity cm3/: 33,5...35,5
1000 s: (31,5...37,5)

cm3 : 3,5 Spread

1000 s: (4,5)

BREAKAWAY

1st version

: 1240...1250 Speed rpm

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 83,0...93,0 Rack travel in mm : 14,20...14,80

Note remarks

: MWM 3,9 B 7 Test sheet Edition : 03.03.88

Replaces

Test oil : ISO-4113

Combination no. : 9 407 083 248

Injection pump

Pump designation : PES4A800320RS1282

Governor

Governor design. : RS350/1500A2B2073R

Customer-spec. information

Customer : MWM

: D 229-4 Engine

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

: 2,2...2,3 Prestroke mm

: (2,15...2,35)
Rack travel in mm : 9,00
Firing creen Firing order : 1-3-4-2

: 0-90-180-270 Phasing

Tolerance + - 0 : 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,00

& maximum rack tra: 21,00 Difference CS: 4...5

BASIC SETTING

1st speed rpm: 1480

Rack travel in mm : 8,95...95

Del.quantity cm3/: 5,55...5,65

100 s: (5,35...5,85)

Spread cm3 : 0,25

100 s: (0,4)

2nd speed rpm : 350
Rack travel in mm : 5,90...6,10
Del.quantity cm3/ : 0,55...0,85

100 s: (أ...25...) Spread

cm3 : 0,20

100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm: 0,3...0

Governor spring pre-tension

Click setting x : 4,0

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1480 Speed

: 55,5...56,5 Del quantity

1000 : (54,0...58,0) : 2,5 Spread cm3

1000 : (4.0)

RATED SPEED

1st version

Control lever

position degrees: 55...63

Testing:

1st rack travel in: 8.00 Speed rpm : 1540...1550

2nd rack travel in: 4,00

rpm : 1570...1600 Speed

3rd rack travel in: 0,30...1,70

Speed : 1700 rpm

LOW IDLE 1

Control lever

position degrees: 30...38

Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 6,00 : 300 Speed rpm Rack travel in mm : 6,60...7,20 Rack travel in mm : 1350 6,2,...1,2 Speed rpm Speed : 1600 rpm Maximum rack trave: 1,00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1480 Rack travel in m: 8,95...9,05 : 1000 2nd speed rpm Rack travel in m: 9,20...9,40 : 800 3rd speed rpm Rack travel in m: 9,45...9,75 : 500 4th speed rpm Rack travel in m: 9,70...9,80 FUEL DELIVERY CHARACTERISTICS 1st version : 1000 Speed rpm Del.quantity cm3/: 52,5...54,5 1000 s: (50,5...56,5) Spread cm3 : 3,5 1000 s: (4,5) : 800 Speed rpm Del.quantity cm3/: 51,0...53,0 1000 s: (49,0...55,0) cm3 : 3,5 Spread 1000 s: (4,5) : 500 Speed Lbw Del.quantity cm3/: 48,0...50,0 1000 s: (46,0...52,0) cm3 : 3,5 Spread 1000 s: (4,5) BREAKAWAY 1st version rpm : 1540...1550 Speed STARTING FUEL DELIVERY Speed rpm : 100 Rack travel in ma: 19,00...21,00 Remarks:

Note remarks

: MB 3.8 I 5 : 03.03.88 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 9 407 083 253

Injection pump

Pump designation : PES4A80D410RS2094Z

Governor

: RSV350...900A7B2076L Governor design.

Customer-spec. information

Customer : DAIMLER-BENZ-BRAS.

: OM 314 Engine

1st version kW : 1800 Rated speed

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

: 2,15...2,25 Prestroke mm

: (2,10...2,30)

Rack travel in mm: 9,00

: 1-3-4-2 Firing order

Phasing : 0-90-180-270 Tolerance + - 0 : 0,50(0,75)

J04

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 9,60...9,70

Del.quantity cm3/: 5,2...5,3

100 s: (5.0...5.5)

Spread cm3 : 0,25

100 s: (0,40)

2nd speed rpm : 350 Rack travel in mm : 7,70...7,90

Del.quantity cm3/: 1,9...2,2

(5رِ2ُ...6رِ1) :100 s

cm3 : 0.20Spread

100 s: (0.35)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800 Rack travel in mm: 0,3...1,0

Governor spring pre-tension

Click setting x : 6,0

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

: 52,0...53,0 Del.quantity

1000 : (50,5...54,5)

ِّ5ر2 : cm3 Spread

: (4.0) 1000

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 8,60

Speed rpm : 940...950

2nd rack travel in: 4,00

Speed rpm : 960...990

3rd rack travel in: 0,30...1,70

rpm : 1050 Speed

LOW IDLE 1

Control lever

position degrees: 24...32

Setting point w/out bumper spring

: 350 Com

Rack travel in mm: 6,00

Speed rpm : 350 Rack travel in mm : 7,70...7,90

Rack travel in mm : 2,00 Speed rpm : 430...490

Speed rpm: 550 Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900 Rack travel in m: 9,60...9,70

2nd speed rpm : 550

Rack travel in m: 9,60...9,70 3rd speed rpm : 400

Rack travel in m: 10,80...11,40

BREAKAWAY

1st version

rpm : 940...950 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 73,0...83,0

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6,90...7,10

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 3,8 I 4 : 03.03.88 Edition Replaces : ISO-4113 Test oil Combination no. : 9 407 083 254 Injection pump Pump designation : PES4A80D410RS2094Z Governor Governor design. : RSV550...1125A1B2076 L Customer-spec. information : DAIMLER-BENZ-BRAS. Customer : OM 314 Engine TEST BENCH REQUIREMENTS Overflow valve : 1 417 413 000 Inlet press., bar: 1.0 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 : 1 680 750 014 Test lines Outside diameter x Wall thickness : 6,00X2,00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY : 2,15...2,25 : (2,10...2,30) Prestroke mm

Rack travel in min: 9,00 : 1-3-4-2 Firing order

: 0-90-180-270 Phasing

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 8,75...8,85

Del.quantity cm3/: 4,85...5,05

100 s: (4,65...5,25)

Spread cm3 : 0.25

100 s: (0,40)

2nd speed rpm : 550
Rack travel in mm : 5,40...5,60
Del.quantity cm3/ : 0,55...0,85 100 s: (0,25...1,15)

cm3 : 0.2Spread

100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed Rack travel in mm: 0,3...1.0

Governor spring pre-tension Click setting x : 5,0

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

: 48,5...50,5 1000 : (47,5...51.5) Del.quantity

cm3 : 2,5 Spread 1000 : (4,0)

RATED SPEED

1st version Control lever

position degrees: 53...61

Testing:

1st rack travel in: 7,80

Speed rpm : 1165...1175

2nd rack travel in: 4,00 Speed rpm : 1185...1215 3rd rack travel in: 0,30...1,70 Speed rpm : 1300

LOW IDLE 1 Control lever

position degrees: 28...36

Setting point w/out bumper spring

rpm : 550

Rack travel in mm: 6,4...6,6

Testing:

rpm : 100 Speed

Minimum rack trave: 19,00

Speed rpm: 550 Rack travel in mm: 7,40...7,60

Rack travel in mm: 2,00 Speed rpm: 620...680

Speed rpm: 800 Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 8,75...8,85
2nd speed rpm : 550

Rack travel in m: 8,75...8,95

3rd speed rpm : 400

Rack travel in m: 10,10...10,60

BREAKAWAY

1st version

rpm : 1165...1175 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 73,0...83,0 Rack travel in mm : 14,20...14,80

LOW IDLE

Speed rpm : 550

Rack travel in mm : 6,40...60

Remarks:

APPLICATION Compressor

Note remarks

Test sheet : MWM 4,1 D : 03.03.88 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 9 407 083 255

Injection pump

Pump designation : PES4A80D320RS1282

Governor

Governor design. : RSV350...1500A2B2077

Customer-spec. information

Customer

: D 226-4 Engine

1st version kW Rated speed : 3000

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm 3ر2...2, 2

: (2,15...2,35)

Rack travel in mm: 9,00

: 1-3-4-2 Firing order

BEGINNING OF DELIVERY DIFFERENCE

: 0-90-120-180

: 0,50(0,75)

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference CS: 4...5

BASIC SETTING

Phasing

Tolerance + - 0

rpm: 1500 1st speed

Rack travel in mm : 9,55...9,65

Del.quantity cm3/: 5,55...5,65

100 s: (5,35...5,85)

cm3 : 0.20Spread

100 s: (0,35)

rpm : 350 2nd speed

Rack travel in mm : 6,90...7,10 Del.quantity cm3/: 0,85...1,25

100 s: (0.55...1,55) cm3 : 0.2

Spread 100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm: 0,3...1.0

Governor spring pre-tension

Click setting x : 5,2

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1500 Speed

: 55,5...56,5 1000 : (54,0...58,0) Del.quantity

cm3 : 2,5 Spread 1000 : (4.0)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 8,60

Speed rpm : 1540...1550

2nd rack travel in: 4,00

rpm : 1590...1620 Speed 3rd rack travel in: 0,30...1,70

Speed rpm : 1740 LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring : 350 Speed rpm Rack travel in mm: 5,50 Testing: Speed : 100 Lbw Minimum rack trave: 19,00 : 350 Speed rpm Rack travel in mm : 5,90...6,10 Rack travel in mm : 2,00 Speed rpm : 580...640 Speed rpm : 800 Maximum rack trave: 1,00 TORQUE CONTROL Torque control curve - 1st version rpm : 1500 1st speed Rack travel in m: 9,55...9,65 : 1000 2nd speed rpm Rack travel in m: 9,75...10,05 : 800 3rd speed rpm Rack travel in m: 10,05...10,25 4th speed rpm : 500 Rack travel in m: 10,30...10,40 FUEL DELIVERY CHARACTERISTICS 1st version : 1000 Speed rpm Del.quantity cm3/: 53,5...55,5 1000 s: (53,0...56,0) cm3 : 3,5 Spread 1000 s: (4,5) : 800 Speed rpm Del.quantity cm3/: 51,5...53,5 1000 s: (51,0...54,0) cm3 : 3,5 Spread 1000 s: (4,5) : 500 Speed rpm Del.quantity cm3/: 48,0...50,0 1000 s: (47,5...50,5) cm3 : 3,5 Spread 1000 s: (4,5) BREAKAWAY 1st version : 1540...1550 Speed rpm STARTING FUEL DELIVERY

Speed

109

rpm

: 100

Del.quantity cm3/: 90,0...130,0

LOW IDI.E

Speed rpm : 350

Rack travel in mm : 5,40...5,60

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MWM 5,9 I 1 Test sheet : 04.03.88 Edition Replaces Test oil : ISO-4113 : 9 407 083 257 Combination no. Injection pump Pump designation : PES6A90D320RS2605 Governor Governor design.: RSV325...1150A2B2097 Customer-spec. information Customer : MMM Engine : TD 229-6 TEST BENCH REQUIREMENTS Overflow valve : 1 417 413 000 Inlet press., bar: 1.0 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6,00X2,00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY : 2,20...2,30 Prestroke mm

: (2.15...2,35)
Rack travel in mm : 9,00
Firing order

: 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0,50(0,75)

: 1-5-3-6-2-4

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference CS: 4...5

BASIC SETTING

1st speed rpm : 1130

Rack travel in mm : 8,80...8,90

Del.quantity cm3/ : 6,6...6,7

100 s: (6,35...6,95)

Spread cm3 : 0.3

100 s: (0,5)

rpm : 325 2nd speed

Rack travel in mm : 6,40...6,60 Del.quantity cm3/: 0,85...1,25 100 s: (0,45...1,65)

cm3 : 0.25

Spread 100 s: (0.45)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Rack travel in mm: 0,3...10

Click setting \times : 3,2

Governor spring pre-tension

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1130 Speed

Del.quantity : 66,0...67,0 1000 : (65,0...68,0)

: 3,0 Spread cm3 : (5,0) 1000

RATED SPEED

1st version Control lever

position degrees: 40...48

Testing:

1st rack travel in: 7,80 rpm : 1165...1175 Speed

2nd rack travel in: 4,00

rpm : 1190...1220 Speed 3rd rack travel in: 0,30...1,70

: 1350 Speed rom

LOW IDLE 1 Control lever

position degrees: 18...26

Firing order

Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm: 6,00 Testing: : 100 Speed rpm Minimum rack trave: 19,00 : 325 Speed rpm Rack travel in mm : 6,40...6,60 Rack travel in mm: 2,00 rpm : 590...650 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1130 Rack travel in m: 8,80...8,90 cnd speed rpm : 800
Rack travel in m: 9,70...10,00
3rd speed rpm : 500
Rack travel in m: 500 Rack travel in m: 10,10...10,20 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 800 Del.quantity cm3/ : 69_5...71_5 1000 s: (67,0...74,0) cm3 : 4.0 1000 s: (5.5) Spread : 500 Speed rpm Del.quantity cm3/: 64,5...66,5 1000 s: (62,0...69,0) cm3 : 4.0 1000 s: (5,5) Spread BREAKAWAY 1st version : 1165...1175 Speed rpm STARTING FUEL DELIVERY Speed rpm Rack travel in mm: 19,00 LOW IDLE : 325 Speed rpm Rack travel in m.n: 5,90...6,10 Remarks: : VALMET **APPLICATION** Tractor (tractor engines)

Note remarks

Test sheet : MWM 5,9 I 2 Edition : 04.03.88

Replaces

Test oil : ISO-4113

Combination no. : 9 407 083 263

Injection pump

Pump designation : PES6A90D320RS2605

Governor

Governor design.: RSV325...900A1B2132R

Customer-spec. information Customer : MWM

Engine : TD 229-6

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,20...2,30 : (2,15...2,35)

Rack travel in mm: 9,00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference CS: 4...5

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 10,05...10,25

Del.quantity cm3/: 7,3...7,4

100 s: (7,15...7,65)

cm3 : 0,3Spread

100 s: (0,5)

rpm : 325 2nd speed

Rack travel in mm : 6,90...7,10 Del.quantity cm3/: 1,35...1,75

100 s: (0.95...2,15) cm3 : 0.25

Spread 100 s: (0.45)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm: 0,3...1,0

Governor spring pre-tension

Click setting x : 3,5

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

Del.quantity : 73.0...74.0 1000 : (71.0...76.0) Spread cm3 : 3.0

1000 : (5,0)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 9,20

rpm : 920...930 Speed

2nd rack travel in: 4.00 Speed rpm : 950...970

3rd rack travel in: 0,30...1,70

Speed rpm : 1050

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring Speed ' rpm : 325' Rack travel in mm : 6,40...6,60

Testing:

rpm : 100 Speed Minimum rack trave: 19,000 Speed rpm : 325

Rack travel in mm : 6,90...7,10

Rack travel in mm : 2,00 Speed rpm : 370...430 Speed rpm : 500 rpm

Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 500

Rack travel in m: 10.15...10,35 2nd speed rpm : 375 Rack travel in m: 11,00...11,60

BREAKAWAY

1st version

rpm : 920...930 Speed

STARTING FUEL DELIVERY

Speed rpm Rack travel in mm: 19,00

LOW IDLE

Speed rpm: 325 Rack travel in mm: 6,40...6,60

Remarks:

APPLICATION Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 5.7 N 19 : 04.03.88 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 9 407 083 273 Injection pump Pump designation : PES6A900410RS2293 Governor Governor design. : RSV350...1250A2B2150 Customer-spec. information : DAIMLER-BENZ-BRAS. Customer : 0M 352 Engine TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

: 2,15...2,25 : (2,10...2,30) Prestroke mm

Rack travel in mun : 9,00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0,50(0,75) Tolerance + - 0

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm: 8,95...9,05

Del.quantity cm3/: 5,1...5,2

100 s: (4,85...5,45)

Spread cm3 : 0.3

100 s: (0,5)

rpm : 350 2nd speed

Rack travel in mm: 7,40...7,60

Del.quantity cm3/: 1,3...1,7

100 s: (0,9...2,1)

Spread cm3: 0,25

100 s: (0,45)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm : 800

Rack travel in mm: 0,3...10

Governor spring pre-tension Click setting x : 2,0

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

: 51,0...52,0 Del.quantity 1000 : (49,0...54,0)

: 3,0 cm3 Spread 1000 : (5,0)

RATED SPEED

1st version Control lever

position degrees: 37...45

Testing:

1st rack travel in: 8,00

rpm : 1290...1300 Speed

2nd rack travel in: 4,00 Speed rpm : 1305...1335 3rd rack travel in: 0,30...1,70

rpm : 1400 Speed

LOW IDLE 1 Control lever

position degrees: 13...21

Setting point wout bumper spring

rpm : 350 Rack travel in mm: 7,00

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 7,40...7,60 Rack travel in mm: 2,00 : 610...670 : 750 Speed rpm Speed rpm Maximum rack trave: 1,00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 8,95...9,05 2nd speed rpm : 900 Rack travel in m: 9.75...10.05 3rd speed rpm : 500 Rack travel in m: 10.55...10.65 FUEL DELIVERY CHARACTERISTICS 1st version : 900 Speed rpm Del.quantity cm3/: 54.5...56.5 1000 s: (52.0...59.0) cm3 : 4.0 1000 s: (5,5) Spread Speed rpm: 500 Del.quantity cm3/: 52...54 1000 s: (49,5...56,5) cm3 : 4,0 Spread 1000 s: (5,5) BREAKAWAY 1st version rpm : 1290...1300 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 73,0...83,0

LOW IDLE

Speed rpm: 350

Rack travel in mm : 6,90...7,10

Note remarks

: MB 5.9 A 11 : 04.03.88 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 407 083 279

Injection pump

Pump designation : PES6A800320RS1271

Governor

Governor design. : RSV350...1400A2B2179

Customer-spec. information Customer : MWM

: D229-6 Engine

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,20...2,30

: (2,15...2,35)

Rack travel in m.n: 9,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

: 0,50 (0,75) Tolerance + - 0

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference CS: 4...5

BASIC SETTING

rpm: 1380 1st speed

Rack travel in mm : 9,45...9,55

Del.quantity cm3/: 5,25...5,35

100 s: (5,05...5,55)

Spread cm3 : 0.25

100 s: (0,4)

rpm : 350 2nd speed

Rack travel in mm : 6,90...7,10

Del.quantity cm3/: 0,75...1.05

100 s: (0,45...1,35) cm3 : 0,2

Spread 100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm: 0,3...10

Governor spring pre-tension

Click setting x : 5,1

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1380 Speed

: 52.5...53.5 1000 : (51.0...55.0) cm3 : 2.5 Del.quantity

Spread 1000 : (4.0)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 8,50

rpm : 1420...1430 Speed

2nd rack travel in: 4,00

Speed rpm : 1470...1500 3rd rack travel in: 0,30...1,70

Speed rpm : 1650

LOW IDLE 1

Control lever

position degrees: 17...25 Setting point w/out bumper spring : 350 Speed rpm Rack travel in mm: 6,50 Testing: Speed rpm : 100 Minimum rack trave: 19,00 : 350 Speed Lbw Rack travel in mm : 6,90...7,10 Rack travel in mm : 2,00 : 640...700 Speed rpm Speed : 850 rpm Maximum rack trave: 1,00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1380 Rack travel in m: 9,45...9,55 : 1100 2nd speed rom Rack travel in m: 9,95...10,25 3rd speed rpm : 800 Rack travel in m: 10,70...10,90 4th speed rpm : 500 Rack travel in m: 10,90...11,00 FUEL DELIVERY CHARACTERISTICS 1st version Speed : 1100 rpm Del.quantity cm3/: 54,5...56,5 1000 s: (52,5...58,5 Spread cm3 : 3,5 1000 s: (4,5) : 800 Speed rpm Del.quantity cm3/: 54...56 1000 s: (52...58) cm3 : 3,5 Spread 1000 s: (4,5) : 500 Speed rpm Del.quantity cm3/: 52...54 1000 s: (50...56) cm3 : 3,5Spread 1000 s: (4,5) BREAKAWAY 1st version : 1420...1430 Speed rpm STARTING FUEL DELIVERY : 100 Speed rpm Rack travel in mm : 19,00...21,00

Speed rpm : 350 Rack travel in mm : 6,40...6,60

Remarks:

LOW IDLE

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MWM 5,9 A12

: 04.03.88 Edition Replaces Test oil : ISO-4113

Combination no. : 9 407 083 280

Injection pump

Pump designation : PES6A80D320RS1271

Governor

Governor design. : RSV350...1500A2B2180

Customer-spec. information Customer : MWM

: D 229-6 Engine

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6,00x2,00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

: 2,2...2,3 : (2,15...2,35) Prestroke mm Rack travel in min: 9,00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference CS : 4...5

BASIC SETTING

1st speed rpm : 1480

Rack travel in mm : 9,45...9,55

Del.quantity cm3/: 5.2...5.3

100 s: (5,0...5,5)

Spread cm3 : 0.25

100 s: (0,4)

rpm : 350 2nd speed

Rack travel in mm : 6,90...7,10 Del.quantity cm3/: 0,75...1,05

100 s: (0,45...1,35) cm3 : 0,35

Spread 100 s: (0,45)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm : 800

Rack travel in mm: 0,3...1,0

Governor spring pre-tension Click setting x : 5,0

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1480 Speed

: 52,0...53,0 Del.quantity 1000 : (50,5...54,5) cm3 : 2,5

Spread 1000 : (4.0)

RATED SPEED

1st version Control lever

position degrees: 53...61

Testing:

1st rack travel in: 8.50 Speed rpm : 1520...1530

3rd rack travel in: 0,30...1,70 Speed rpm : 1750

LOW IDLE 1 Control lever

position degrees: 17...25 Setting point w/out bumper spring : 350 rpm Rack travel in mm: 6,50 Testing: Speed rpm : 100 Minimum rack trave: 19,00 : 350 Speed rpm 10,70...7 Rack travel in mm: Rack travel in mm : 2,00 : 640...700 Speed rpm : 850 Speed rpm Maximum rack trave: 1,00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1480 Rack travel in m: 9,45...9,55 : 1100 2nd speed rpm Rack travel in m: 9,95...10,25 : 800 3rd speed rpm Rack travel in m: 10,70...10,90 4th speed rpm : 500 Rack travel in m: 10,90...11,00 FUEL DELIVERY CHARACTERISTICS 1st version : 1100 Speed rpm Del.quantity cm3/: 54,0...56,0 1000 s: (53,5...56,5) cm3 : 3,5 Spread 1000 s: (4,5) Speed : 800 rpm Del.quantity cm3/ : 53,5...55,5 1000 s: (53,0...56,0) cm3 : 3,5 Spread 1000 s: (4,5) : 500 Speed rpm Del.quantity cm3/: 51,5...53,5 1000 s: (51,0...54,0) cm3 : 3,5 Spread 1000 s: (4,5) BREAKAWAY 1st version rpm : 1520...1530 Speed STARTING FUEL DELIVERY Speed : 100 rpm Rack travel in mm : 19,00...21,00 LOW IDLE

Speed rpm : 350 Rack travel in mm : 6,40...6,60

Note remarks

Test sheet : MWM 5,9 I Edition : 04.03.88

Replaces

: ISO-4113 Test oil

Combination no. : 9 407 083 282

Injection pump

Pump designation : PES6A90D320RS2605

Governor

: RSV325...1400A2B2096 Governor design.

Customer-spec. information Customer

: TD 229-6 Engine

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6,00x2,00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,2...2,3

: (2,15...2,35)

Rack travel in man: 9,00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference CS : 4...5

BASIC SETTING

rpm: 1400 1st speed

Rack travel in mm : 8,00...8,10

Del.quantity cm3/ : 6,5...6,6

100 s: (6,25...6,85)

Spread cm3 : 0.3

100 s: (0.5)

rpm : 325 2nd speed

Rack travel in mm : 6,40...6,60 Del.quantity cm3/: 0,95...1,35

100 s: (0.55...1,75) cm3 : 0.25

Spread 100 s: (0,45)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm: 0,3...1.0

Governor spring pre-tension

Click setting x : 3,5

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

Del.quantity : 63,0...67,0)

: 3,0 cm3 Spread

1000 : (5.0)

RATED SPEED

1st version

Control lever

position degrees: 52...60

Testing:

1st rack travel in: 7,00

rpm : 1440...1450 Speed

2nd rack travel in: 4,00

Speed rpm : 1465...1495 3rd rack travel in: 0,30...1,70

rpm : 1650 Speed

LOW IDLE 1 Control lever

position degrees: 19...27 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm: 6,00 Testing: Speed rpm : 100 Minimum rack trave: 19,00 : 325 Speed rpm Rack travel in mm : 6,40...6,60 Rack travel in mm : 2,00 Speed rpm : 620...680 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1400 Rack travel in m: 8,00...8,10 2nd speed rpm : 1200 Rack travel in m: 8,00...8,20 : 800 3rd speed rpm Rack travel in m: 8,40...8,70 4th speed rpm : 500 Rack travel in m: 8,95...9,05 FUEL DELIVERY CHARACTERISTICS 1st version : 800 rpm Speed Del.quantity cm3/: 52...54 1000 s: (49,5...56,5) Spread cm3 : 4.01000 s: (5,5) : 500 Speed rpm Del.quantity cm3/: 50.0...52.0 1000 s: (47.5...54.5) Spread cm3 : 4.01000 s: (5,5) BREAKAWAY 1st version rpm : 1440...1450 Speed STARTING FUEL DELIVERY : 100 Speed rpm Rack travel in mm: 19,00 LOW IDLE rpm

Speed

Rack travel in mm : 5,90...6,10

Note remarks

: MWM 2,9 B : 04.03.88 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 9 407 083 283

Injection pump

Pump designation : PES3A80D320RS1281

Governor

: RSV350...1150A2B2129 Governor design.

Customer-spec. information Customer : MWM

: D229-3 Engine

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6,00x2,00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

: 2,2...2,3 : (2,15...2,35) Prestroke mm

Rack travel in m.n: 9,00

: 1-2-3-Firing order

Phasing : 0-120-240 Tolerance + - 0 : 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50 & maximum rack tra: 21.00 Difference CS : 4...5

BASIC SETTING

rpm : 1150 1st speed

Rack travel in mm : 9,40...9,50

Del.quantity cm3/: 5,1...5,2

100 s: (4,9...5,4)

Spread cm3 : 0.25

100 s: (0,4)

rpm : 350 2nd speed

Rack travel in mm : 6,90...7,10 Del.quantity cm3/: 0,95...1_25

100 s: (0,65...1,65)

cm3 : 0,2 Spread

100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm: 0,3...1,0

Governor spring pre-tension

Click setting x : 4,35

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

: 51,0...52,0 Del.quantity

1000 : (49,5...53,5) cm3 : 2,5

Spread

1000 : (4,0)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 8,40

rpm : 1190...1200 Speed

2nd rack travel in: 4,00

Speed rpm : 1235...1265 3rd rack travel in: 0,30...1,70

rpm : 1400 Speed

LOW IDLE 1

Control lever

```
position degrees: 16...24
Setting point w/out bumper spring
           rpm : 350'
Speed
Rack travel in mm: 6,50
Testing:
Speed
            rpm : 100
Minimum rack trave: 19,00
                 : 350
Speed
            rpm
Rack travel in mm: 6,90...7,10
Rack travel in mm: 2,00
Speed rpm: 670...710
           rpm : 800
Speed
Maximum rack trave: 1,00
TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1150
  Rack travel in m: 9,40...9,50
2nd speed rpm : 900
  Rack travel in m: 10,00...10,30
3rd speed rpm : 500
  Rack travel in m: 10,75...10,85
FUEL DELIVERY CHARACTERISTICS
1st version
                 : 900
Speed
            Lbw
Del.quantity cm3/: 53.0...55.0
1000 s: (51.0...57.0)
            cm3 : 3,5
1000 s: (4,5)
rpm : 500
Spread
Speed
            rpm
Del.quantity cm3/ : 52,5...54,5
            1000 s: (50,5...56,5)
             cm3 : 3,5
Spread
            1000 s: (4,5)
BREAKAWAY
1st version
           rpm : 1190...1200
Speed
STARTING FUEL DELIVERY
            rpm : 100
Speed
Rack travel in mm : 19,00...21,00
LOW IDLE
                 : 325
Speed
            rpm
Rack travel in mm : 6,40...6,60
Remarks:
                   : VALMET
APPLICATION
```

Tractor (tractor engines)

Note remarks

: MWM 3,9 B 6 Test sheet : 04.03.88 Edition

Replaces

: ISO-4113

Combination no. : 9 407 083 284

Injection pump

Pump designation : PES4A80D320RS1282

Governor

Test oil

Governor design.

: RSV350...1150A2B2129

-1R

Customer-spec. information Customer

Engine

: D229-4

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder

assembly

: 0 681 343 009

Opening

: 172...175 pressure, bar

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6,00X2,00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm

3ر2...2ء :

: (2,15...2,35)
Rack travel in m.n: 9,00
Firing order

Firing order : 1-3-4-2

: 0-90-180-270

Phasing Tolerance + - 0

: 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

J24

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference CS: 4...5

BASIC SETTING

1st speed

rpm: 1150

Rack travel in mm : 8,80...8,90

Del.quantity cm3/: 4,95...5,05

100 s: (4,75...5,25)

cm3 : 0.25

100 s: (0,4)

rpm : 350 2nd speed

Rack travel in mm : 6,40...6,60

Del.quantity cm3/: 0,7...1.0

100 s: (0,4...1,3)

Spread

Spread

cm3 : 0.2

100 s: (Ó,35)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm: 0,3...0

Governor spring pre-tension

Click setting x : 4,3

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1150

Del.quantity

: 49,5...50,5 1000 : (48,0...52,0)

Spread

cm3

1000 : (4,0)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 7.90 Speed rpm : 1170...1180

2nd rack travel in: 4,00

rpm : 1210...1240

Speed

3rd rack travel in: 0,30...1,70

rpm : 1400

LOW IDLE 1

Speed

Control lever

```
position degrees: 15...23
Setting point w/out bumper spring
            rpm : 350
Rack travel in mm: 6,00
Testing:
             rpm : 100
Speed
Minimum rack trave: 19,00
Speed rpm : 350
Rack travel in mm : 6,40...6,60
Rack travel in mm : 2,00 Speed rpm : 640...700
            rpm : 800
Speed
Maximum rack trave: 1,00
TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1150
  Rack travel in m: 8,80...8,90
                  : 900
2nd speed rpm
  Rack travel in m: 9,75...10,05
3rd speed rpm : 500
  Rack travel in m: 10,55...10,65
FUEL DELIVERY CHARACTERISTICS
1st version
Speed rpm : 900 Del.quantity cm3/ : 53,0...55,0
             1000 s: (51,0...57,0
              cm3 : 3,5
Spread
             1000 s: (4,5)
                  : 500
Speed
             rpm
Del.quantity cm3/: 53.5...55.5
1000 s: (51.5...57.5)
Spread cm3 : 3.5
             1000 s: (4,5)
BREAKAWAY
1st version
        rpm : 1170...1180
Speed
STARTING FUEL DELIVERY
            rpm : 100
Speed
Rack travel in mm : 19,00...21,00
LOW IDLE
            rpm
Speed
Rack travel in mm : 5,90...6,10
Remarks:
                   : VALMET
APPLICATION
```

Tractor (tractor engines)

J25

Note remarks

Test sheet : MWM 5,9 A10 Edition : 04.03.88

Replaces Test oil

: ISO-4113

Combination no. : 9 407 083 286

Injection pump

Pump designation : PES6A80D320RS1271

Governor

Governor design.

: RSV350...1500A2B2028

-1R

Customer-spec. information

Customer

Engine

: D 229-6

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm : 2,2...2,3

: (2,15...2,35)
Rack travel in m.n : 9,00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0: 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference CS : 4...5

BASIC SETTING

rpm: 1480 1st speed

Rack travel in mm : 9,20...9,30

Del.quantity cm3/: 4,95...5,05

100 s: (4,75...5,25)

cm3 : 0.25Spread

100 s: (0,4)

rpm : 350 2nd speed

Rack travel in mm: 6,90...7,10

Del.quantity cm3/: 0,75...1,05

100 s: (0,45...1,35)

cm3 : 0,2Spread

100 s: (0,35)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 Speed rpm : 800

Rack travel in mm: 0,3...1,0

Governor spring pre-tension

Click setting x : 5,0

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1480

Del.quantity : 49,5...50,5

1000 : (48.0...52.0) cm3 : 2.5 1000 : (4.0)

Spread

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 8.20 Speed rpm : 1520...1530

2nd rack travel in: 4,00

Speed rpm : 1560...1590

3rd rack travel in: 0,30...1,70 Speed rpm : 1700

LOW IDLE 1

Control lever

position degrees: 16...24 Setting point w/out bumper spring : 350 Speed rpm Rack travel in mm: 6,50 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 6,90...7,10 Rack travel in mm : 2,00 Speed rpm : 600...660 : 750 Speed rpm Maximum rack trave: 1,00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1480 Rack travel in m: 9,20...9,30 ad speed rpm : 1300 2nd speed rpm Rack travel in m: 9,40...9,60 d speed rpm : 1000 3rd speed Rack travel in m: 10,20...10,50 4th speed rpm : 500 Rack travel in m: 10,80...10,90 FUEL DELIVERY CHARACTERISTICS 1st version : 500 Speed rpm Del.quantity cm3/ : 51,5...53,5 1000 s: (49,5...55,5) cm3 : 3,5 Spread 1000 s: (4,5) : 1000 Speed rpm Del.quantity cm3/: 55,5...57,5 1000 s: (53,5...59,5) Spread cm3 : 3,5 1000 s: (4,5) BREAKAWAY 1st version rpm : 1520...1530 Speed STARTING FUEL DELIVERY : 100 Speed rpm Rack travel in m.n : 19,00...21,00 LOW IDLE Speed : 350 rpm Rack travel in mm : 6,40...6,60

J27

Note remarks

: MWM 5,9 A 9 : 04.03.88 Test sheet Edition

Replaces

: ISO-4113 Test oil

: 9 407 083 287 Combination no.

Injection pump

Pump designation : PES6A80D320RS1271

Governor

Governor design. : RSV350...1000A1B628-

Customer-spec. information Customer : MWM

Engine : D 229-6

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,2...2,3 : (2,15...2,35)
Rack travel in mm : 9,00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50(0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference CS : 4...5

BASIC SETTING

1st speed rpm: 1025

Rack travel in mm : 9,00...9,10

Del.quantity cm3/: 4,25...4,35

100 s: (4,05...4,55)

Spread cm3 : 0.25

100 s: (0,4)

rpm : 350 2nd speed

Rack travel in mm : 6,90...7,10 Del.quantity cm3/: 0,75...1,05

100 s: (0,45...1,35) cm3 : 0,2

Spread

100 s: (0,35)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm: 0,3...1,0

Governor spring pre-tension

Click setting x : 3,5

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1025 Speed

: 42,5...43,5 1000 : (41,0...45,0) Del.quantity

cm3 Spread

: 2,5 : (4,0) 1000

RATED SPEED

1st version

Control lever

position degrees: 52...60

Testing:

1st rack travel in: 8,00

rpm : 1065...1075 Speed

2nd rack travel in: 4,00

rpm : 1080...1110 Speed

3rd rack travel in: 0,30...1,70

rpm : 1250 Speed

LOW IDLE 1

Control lever

: POCLAIN

APPLICATION Excavator

position degrees: 20...28 Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6,50

Testing:

rpm : 100 Speed Minimum rack trave: 15.00 : 350 rpm Speed Rack travel in mm : 6,90...7,10 Rack travel in mm : 2,00 : 550...610 Speed rpm

Speed rpm : 700 Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

: 500 1st speed rpm Rack travel in m: 10,60...10,70

: 70Ó 2nd speed rpm Rack travel in m: 10,10...10,30

3rd speed rpm : 900

Rack travel in m: 9,20...9,50 4th speed rpm : 1025

Rack travel in m: 9,00...9,10

FUEL DELIVERY CHARACTERISTICS

1st version

: 500 Speed rpm

Del.quantity cm3/: 47.5...49.5 1000 s: (45.5...51.5)

cm3 : 3,5 Spread 1000 s: (4,5)

: 70ô Speed rpm

Del.quantity cm3/: 47,5...49,5

1000 s: (45,5...51,5) cm3 : 3,5 Spread

1000 s: (4,5)

BREAKAWAY

1st version

rpm : 1065...1075 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Rack travel in mm: 19,00...21,00

LOW IDLE

: 350 Speed rpm

Rack travel in mm : 6,90...7,10 Del.quantity cm3/: 0,75...1,05

Remarks:

K01

Note remarks

Test sheet : MWM 5,9 A 8 Edition : 04.03.88

Replaces

Test oil

: ISO-4113

Combination no.

: 9 407 083 288

Injection pump

Pump designation : PES6A80D320RS1271

Governor

Governor design. : RSV350...1100A2B664-

Customer-spec. information

Customer

: D 229-6 Engine

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6,00x2,00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm : 2,2...2,3 : (2,15...2,35)
Rack travel in mm : 9,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

K02

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference CS : 4...5

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 9,20...9,30

Del.quantity cm3/: 4,65...4,75

100 s: (4,45...4,95)

Spread cm3 : 0.25

100 s: (0.4)

2nd speed rpm : 350

Rack travel in mm : 6,90...710 Del.quantity cm3/ : 0,7...1,0

100 s: (0,4...1,3)

cm3 : 0.2Spread

100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm: 0,3...1,0

Governor spring pre-tension

Click setting x : 4,0

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 46,5...47,5 Del.quantity

1000 : (44,0...50,0) : 2,5 cm3

Spread

1000 : (4,0)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 8,20 Speed rpm : 1140...1150

2nd rack travel in: 4,00

rpm : 1170...1200 Speed

3rd rack travel in: 0,00...1,70

rpm : 1350 Speed

LOW IDLE 1

Control lever

position degrees: 13...21

Setting point w/out bumper spring

rpm : 350 Speed Rack travel in mm: 6,50

Testing:

: 100 Speed rpm Minimum rack trave: 19,00 Speed rpm : 350

Rack travel in mm: 6,90...7,10
Rack travel in mm: 2,00
Speed rpm: 510...570

: 650 Speed rpm Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 9,20...9,30

2nd speed rpm: 500
Rack travel in m: 9,20...9,40
3rd speed rpm: 400

Rack travel in m: 10,10...10,70

BREAKAWAY

1st version

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm Rack travel in mm: 19,00

LOW IDLE

rpm : 350 Speed

Rack travel in mm: 6,40...6,60

Remarks:

Note remarks

: MWM 5,9 A 7 : 04.03.88 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 407 083 289

Injection pump

Pump designation : PES6A80D320RS1271

Governor

: RSV350...1200A2B1108 Governor design.

Customer-spec. information

Customer

: D 229-6 Engine

1st version kW : 84.6 Rated speed : 2400

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,2...2,3

: (2,15,...2,35)

Rack travel in mm : 9,00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{0}$: 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference CS: 4...5

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 9,70...9,80

Del.quantity cm3/: 5,25...5,35

100 s: (5,05...5,55)

Spread cm3 : 0.25

100 s: (0,4)

2nd speed rpm : 350

Rack travel in mm : 6,90...7,10 Del. quantity cm3/: 0,70...1,00

100 s: (0,40...1,30)

cm3 : 0.2Spread

100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm: 0,3...1.0

Governor spring pre-tension

Click setting x : 4,2

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

52,5...53,5 Del.quantity

1000 : (50,5...55,5)

: 2,2 Spread cm3

1000 : (4.0)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 8,70

Speed rpm : 1240...1250

2nd rack travel in: 4,00 Speed rpm : 1290...1320 3rd rack travel in: 0,00...1,70

K04

Speed : 1450 CDM LOW IDLE 1 Control lever position degrees: 14...22 Setting point w/out bumper spring rpm : 350 Rack travel in mm : 6,40...6,60 Testing: Speed : 100 rpm Minimum rack trave: 19,00 : 350 rpm Rack travel in mm : 6,90...7,10 Rack travel in mm : 2,00 rpm : 630...690 Speed : 800 Speed rpm Maximum rack trave: 1,00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 9,70...9,80 : 1000 2nd speed rpm Rack travel in m: 10,00...10,30 : 800 3rd speed rpm Rack travel in m: 10,80...11,00 4th speed rpm : 500 Rack travel in m: 11,20...11,30 FUEL DELIVERY CHARACTERISTICS 1st version : 800 Speed rpm Del.quantity cm3/: 57,0...59,0 1000 s: (55,0...61,0) cm3 : 3,5 Spread 1000 s: (4,5) : 500 Speed rpm Del.quantity cm3/: 56,5...58,5 1000 s: (55,5...60,5) Spread cm3 : 3,5 1000 s: (4,5) BREAKAWAY 1st version rpm : 1240...1250 Speed STARTING FUEL DE'LIVERY Speed rpm Rack travel in mm: 19,00 Remarks:

Note remarks

Test sheet : MWM 5,9 A 6 : 04.03.88 Edition

Replaces

Test oil : ISO-4113

: 9 407 083 290 Combination no.

Injection pump

Pump designation :

PES6A80D320RS1271

Governor

: RSV350...1000A1B2029 Governor design.

Customer-spec. information

Customer

: MWM

Engine

: D 229-6

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm : 2,2...2,3 : (2,15...2,35)
Rack travel in mm : 9,00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \circ : 0.50(0.75)$

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference CS: 4...5

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,70...9,80

Del.quantity cm3/: 4,9...50

100 s: (4,7...5,2)

cm3 : 0.24Spread

100 s: (0,4)

rpm : 350 2nd speed

Rack travel in mm : 6,90...7,10

Del.quantity cm3/ : 0,7...1,0 100 s: (0,4...1,3)

cm3 : 0.2Spread

100 s: (0,35)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm: 0,3...1,0

Governor spring pre-tension

Click setting x : 5,2

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

Del.quantity : 49,0...50,0

1000 : (47,5...51,5)

: 2,5 : (4,0) Spread cm3

1000

RATED SPEED

1st version

Control lever

position degrees: 51...59

Testing:

1st rack travel in: 8,70

rpm : 1040...1050 Speed

2nd rack travel in: 4,00

Speed rpm : 1070...1100 3rd rack travel in: 0,30...1,70

: 1200

Speed rpm

LOW IDLE 1

Control lever position degrees: 20...28 Setting point w/out bumper spring rpm : 350' Rack travel in mm: 6,50 Testing: rpm : 100 Speed Minimum rack trave: 19,00 Speed rpm : 350 Rack travel in mm : 6,90...7,10 Rack travel in mm : 2,00 Speed rpm : 540...600 rpm : 670 Speed Maximum rack trave: 1,00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 9,70...9,80 2nd speed rpm : 700 Rack travel in m: 10,60...10,90 3rd speed rpm : 500 Rack travel in m: 11,20...11,30 FUEL DELIVERY CHARACTERISTICS 1st version : 700 Speed rpm Del.quantity cm3/: 53,0...55,0 1000 s: 51.0...57.0) cm3 : 3.5 1000 s: (4.5) Spread : 50ố Speed rpm Del.quantity cm3/: 53.5...55.5 1000 s: (51.5...57.5) Spread cm3: 3.5 1000 s: (4,5) BREAKAWAY 1st version rpm : 1040...1050 Speed STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 19,00

Remarks:

: FIAT ALLIS

APPLICATION
Tractor (tractor engines)

Note remarks

Test sheet : MB 5,7 N 17 : 04.03.88 Edition

Replaces

Test oil : ISQ-4113

Combination no. : 9 407 083 292

Injection pump

Pump designation : PES6A90D410RS2293

Governor

: RSV350...1200A1B1086 Governor design.

-1L

Customer-spec. information

: DAIMLER-BENZ-BRAS. Customer

: OM 352 A Engine

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening.

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

: 2,15...2,25 Prestroke mm : (2,1...2,3)

Rack travel in mm: 9,00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference CS : 4...5

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 8,65...8,75

Del.quantity cm3/ : 5,05...5,15

100 s: (4,8...5,3)

cm3 : 0,3Spread

100 s: (0.5)

rpm : 350 2nd speed

Rack travel in mm: 7,40...7,60 Del.quantity cm3/: 1,35...1,75

100 s: (0,95...2,15)

cm3 : 0.25 100 s: (0.45) Spread

rpm : 900 3rd speed

Rack travel in mm: 9,7...10,0 Del.quantity cm3/ : 5,75...5,95

100 s: (5,4...6,3)

cm3 : 0,4Spread

100 s: (0,55)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpin : 800

Speed Rack travel in mm: 0,3...0

Governor spring pre-tension

Click setting x : 6,0

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

: 50,5...51,5 1000 : (48,5...53,5) Del.quantity

3,0 Spread cm3

1000 : (5.0)

RATED SPEED

1st version

Control lever

position degrees: 66...74

Testing:

1st rack travel in: 7,65

rpm : 1245...1255 Speed

2nd rack travel in: 4,00

K08

rpm : 1265...1295 Speed 3rd rack travel in: 0,30...1,70 Speed rpm : 1400 LOW IDLE 1 Control lever position degrees: 24...32 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 7,00 Testing: rpm : 100 Speed Minimum rack trave: 19,00 : 350 Speed ∵bш Rack travel in mm : 7,40...7,50 Rack travel in mm : 2,00 rpm : 560...620 Speed : 750 Speed rpm Maximum rack trave: 1,00 TORQUE CONTROL Torque control curve - 1st version rpm : 1200 1st speed Rack travel in m: 8,65...8,75 : 900 rpm 2nd speed Rack travel in m: 9,70...10,00 3rd speed rpm : 500 Rack travel in m: 10,15...10,25 FUEL DELIVERY CHARACTERISTICS 1st version : 900 rpm Speed Del.quantity cm3/: 57,5...59,5 1000 s: (55,0...62,0) Spread cm3 : 4.01000 s; (5,5) : 500 Speed rpm Del.quantity cm3/: 51.5...53.5 1000 s: (49.0...56.0) cm3 : 4,0 Spread 1000 s: (5,5) BREAKAWAY 1st version rpm : 1240...1250 Speed STARTING FUEL DE'LIVERY ; 100 rom Rack travel in mm : 13,70...14,30 Remarks:

: KOMATSU

APPLICATION
Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS 1st speed rpm: 1250 Note remarks Rack travel in mm : 9,85...9,95 : MB 5,7 N 18 Del.quantity cm3/: 6,15...6,25 Test sheet Edition : 07.03.88 100 s: (5,9...6,5) Replaces Test oil : ISO-4113 cm3 : 0.3Spread : 9 407 083 293 Combination no. 100 s: (0,5) Injection pump rpm : 350 Pump designation : PES6A90D410RS2293Z 2nd speed Rack travel in mm : 7,40...7,60 Del.quantity cm3/ : 1,25...1,65 Governor Governor design. : RSV350...1250A2B776L 100 s: (0,85...2,05) cm3 : 0.25Customer-spec. information Spread 100 s: (0,45) : DAIMLER-BENZ-BRAS. Customer : 0M 352 Engine GUIDE SLEEVE POSITION Control-lever position TEST BENCH REQUIREMENTS Degree: -3 rpm : 800 Speed Overflow valve Rack travel in mm: 0,3...0 : 1 417 413 000 Governor spring pre-tension Inlet press., bar : 1.0 Click setting x : 4,75 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : 0 681 343 009 assembly 1st version : 1250 Opening Speed rpm : 172...175 : 61,5...62,5 pressure, bar Del.quantity 1000 : (59,5...64,5) : 3,0 cm3 Spread : (5,0) Test lines : 1 680 750 014 1000 Outside diameter RATED SPEED x Wall thickness : 6,00X2,00X600 1st version x Length mm Control lever position degrees: 48...56 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. Testing: 1st rack travel in: 8,85 per values rpm : 1290...1300 Speed BEGINNING OF DELIVERY 2nd rack travel in: 4,00 rpm : 1355...1385 Speed Prestroke mm : 2,15...2,25 : (2,10...2,30) Rack travel in mm : 9,00 3rd rack travel in: 0,30...1,70 : 1500 Speed rom : 1-5-3-6-2-4 LOW IDLE 1 firing order Control lever position degrees: 20...28 Setting point w/out bumper spring : 0-60-120-180-240-300 : 350 Phasing rpm Tolerañce + - 0 Rack travel in mm: 7,00 : 0,50(0,75)

> Testing: Speed

: 100

rpm

K10

BASIC SETTING

Minimum rack trave: 19,00

Speed rpm : 350 Rack travel in mm : 7,40...7,60

Rack travel in mm: 2,00
Speed rpm: 620...680
Speed rpm: 750
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250 Rack travel in m: 9,85...9,95

2nd speed rpm : 500 Rack travel in m: 9,85...10,05 3rd speed rpm : 400

Rack travel in m: 10,80...11,40

BREAKAWAY

1st version

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Rack travel in mm : 13,70...14,30

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 6,90...7,10

Remarks:

APPLICATION

Combine-harvester

Note remarks

Test sheet : MWM 3,9 B 5 : 07.03.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 407 083 296

Injection pump

Pump designation : PES4A80D320RS1282

Governor

Governor design. : RSV350...1500A2B2122

-2R

Customer-spec. information

Customer

Engine : D 229-4

TEST BENCH REQUIREMENTS

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.0

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2,20,..2,30 Prestroke mm

: (2,15...2,35)

Rack travel in mm: 9,00

: 1-5-3-6-2-4 Firing order

Phasing : 0-90-180-270

Tolerance + - 0 : 0,50(0,75)

BEGINNING OF DELIVERY DIFFERENCE

K12

betw. rack trav. m: 10,50 & maximum rack tra: 21,00 Difference CS : 4...5

BASIC SETTING

1st speed rpm : 1500

Rack travel in mm : 10,25...10,35

Del.quantity cm3/: 6,0...6,1

100 s: (5,8...6,3)

Spread cm3 : 0.25

100 s: (0,40)

2nd speed rpm : 350

Rack travel in mm : 6,90...7,10

Del.quantity cm3/: 0,75...1,05 100 s: (Ó, 45...أ.,35)

cm3 : 0.2Spread

100 s: (0,35)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm: 0,3...0

Governor spring pre-tension

Click setting x : 6,0

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1500

: 60,0...61,0 Del.quantity

1000 : (59,0...62,0) : 2,5 Spread cm3

1000

: (4.0)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 9.25 Speed rpm : 1540...1550

2nd rack travel in: 4,00

rpm : 1610...1640 Speed

3rd rack travel in: 0,30...1,70

rpm : 1800 Speed

LOW IDLE 1

Control lever

position degrees: 22...30 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6,50 Testing: Speed C DW : 100 Minimum rack trave: 19,00 : 350 rpm Rack travel in mm : 6,90...7,10 Rack travel in mm : 2,00 Speed rpm : 670...730 Speed : 800 rpm Maximum rack trave: 1,00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1500 Rack travel in m: 10,25...10,35 2nd speed rpm : 1100 Rack travel in m: 10,60...10,90 3rd speed rpm : 800 Rack travel in m: 11,00...11,30 4th speed rpm : 500 Rack travel in m: 11,20...130 FUEL DELIVERY CHARACTERISTICS 1st version Speed грт : 1100 Del.quantity cm3/: 60,5...62,5 1000 s: (59,0...64,0) cm3 : 3.5 1000 s: (4.5) Spread Speed rpm : 800 Del.quantity cm3/: 58.5...60.5 1000 s: (57.0...62.0) cm3 : 3,5 1000 s: (4,5) Spread : 500 Speed rpm Del.quantity cm3/ : 55,0...57,0 1000 s: (53,5...58,5) : 3,5 Spread cm3 1000 s: (4,5) STARTING FUEL DELIVERY Speed Lbw Rack travel in mm: 19,00 LOW IDLE

Speed rpm: 350

Rack travel in mm : 6,40...6,60

Remarks:

Note remarks

: KHD 3.0 b 1 : 11.03.88 Test sheet Edition : 18.9.87 Replaces Test oil : ISO-4113

: 0 400 463 146 Combination no.

Injection pump

: PES3A75D410/3RS1324 Pump designation

EP type number : 0 410 473 977

Governor

: RSV325...900A7C602-1 Governor design.

: 0 420 232 388 Governer no.

Customer-spec. information Customer

: F3L912 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00

; (1.85...2.05)

Rack travel in mm : 9.00...12.00

: 1- 3- 2 Firing order

: 0-120-240 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.70...12.90

Del.quantity cm3/ : 5.2...5.3

100 s: (5.1...5.5)

: 0.2 Spread cm3

100 s: (0.4)

rpm : 325.0 2nd speed

Rack travel in mm : 8.6...8.8 Del.quantity cm3/ : 0.7...1.3 100 s: (0.5...1.4)

cm3 : 0.2Spread

100 s: (0.3)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 52.5...53.5 Del.quantity

1000 : (51.0...55.0)

cm3 : 2.50 Spread

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 11.40

rpm : 940...950 Speed

2nd rack travel in: 4.00

rpm : 955...985 Speed

3rd rack travel in: 4.00

: 1005...1035 Speed rpm

4th rack travel in: 1100 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring rpm : 325 Speed Rack travel in mm: 8.2 : 325 Speed Lbw Rack travel in mm : 8.60...8.80 Rack travel in mm : 2.00 rpm : 525...585 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 700 Rack travel in m: 12.70...12.90 2nd speed rpm : 500
Rack travel in m: 13.00...13.10
4th speed rpm : 765 Rack travel in m: 12.60...12.80 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 700 Del.quantity cm3/ : 49.0...50.0 1000 s: (47.5...51.5) cm3 : 2.50 Spread 1000 s: (4.00) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.40 rpm : 940...950 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0) Rack travel in mm : 19.50...21.00 Remarks:

APPLICATION Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1- 4- 9- 8- 5- 2-11- 10- 3- 6- 7- 12 Note remarks Test sheet : KHD 19,0 h : 25.03.88 Edition : 18.12.87 : 0-15-60-75-120-135-Replaces Phasing Test oil : ISO-4113 180-195-240-255-300-315 Tolerance + - 0 Combination no. : 0 400 640 100 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PE12A95D61OLS2453 EP type number : 0 410 690 998 BASIC SETTING Governor rpm: 1150 Governor design. : RQV300...1150AB1047D 1st speed Rack travel in mm : 9.20...9.30 : 0 420 214 242 Governer no. Del.quantity cm3/: 8.1...8.3 Customer-spec. information Customer 100 s: (7.9...8.5) Engine : F12L413FW Spread cm3 : 0.3: 230.0 1st version kW : 2300 100 s: (0.6) Rated speed rpm : 300.0 TEST BENCH REQUIREMENTS 2nd speed Rack travel in mm: 6.4...6.6 Del.quantity cm3/ : 1.2...1.8 Test oil inlet temp. OC : 38...42 100 s: (0.9...2.0) cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 1 417 413 000 (B) Setting of injection pump Inlet press., bar : 1.00 with governor Test nozzle holder GUIDE SLEEVE TRAVEL : 0 681 343 009 rpm : 300 assembly 1st speed : 1.20...1.30 travel mm 2nd speed rpm : 395 Opening : 172...175 : 2.20...2.60 pressure, bar travel mm 3rd speed rpm : 615 : 3.10...3.60 travel mm Test lines : 1 680 750 014 4th speed rpm : 1195 : 8.40...8.50 travel mm 5th speed rpm : 1235 Outside diameter x Wall thickness travel mm : 9.00...9.20 : 6.00x2.00x600 x Length mm GUIDE SLEEVE POSITION (A) Injection pump setting values Control-lever position Insp. values in parentheses Degree: -1 Set equal delivery quant. rpm : 1180 Speed Rack travel in mm : 15.20...17.80 per values ____ FULL LOAD DELIV. AT FULL LOAD STOP BEGINNING OF DELIVERY Test pressure, bar: 25...27 1st version : 2.00...2.10 Prestroke mm Speed rom : 1150 : (1.95...2.15)

Del.quantity : 81.0...85.0)

Spread

cm3

: 3.50 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 8.20

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

Speed rpm : 1230...1260

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 9...17

Testing:

Speed rpm : 100

Minimum rack trave: 8.00

: 300 rpm

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

rpm : 320...425 Speed

TORQUE CONTROL

Dimension a mm : 1.00

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.20...9.30

2nd speed rpm : 500

Rack travel in m: 10.20...10.30

3rd speed rpm : 935

Rack travel in m: 9.90...10.10

4th speed rpm : 1045
Rack travel in m: 9.40...9.60

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 650 Speed rom

Del.quantity cm3/: 93.5...96.5

1000 s: (91.0...99.0)

rpm : 750 Speed

Del.quantity cm3/: 84.5...87.5

1000 s; (82.0...90.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.20

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 15.40...15.80

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Set fuel delivery in fuel-delivery characteristics with stop above the governor housing.

APPLICATION

Below-ground operation

Note remarks

: MB 8.7 d 1 : 25.03.88 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 400 646 202

Injection pump

Pump designation : PE6A90D410RS2124 EP type number : 0 410 696 141

Governor

Governor design. : RQV300...1250AB815DL

Governer no. : 0 420 214 164

Customer-spec. information

: DAIMLER-BENZ Customer

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

: 0 681 343 009 assembly

Opening.

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.15...2.25 Prestroke mm

: (2.10...2.30)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

K18

Tolerance + - 0: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 8.6...8.7

100 s: (8.4...8.9)

cm3 : 0.3Spread

100 s: (0.4)

rpm : 300.0 2nd speed Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.0...1.6

100 s: (0.8...1.8)

cm3 : 0.2Spread 100 s: (0.4)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

travel mm : 1.20...1.50

rpm : 550 2nd speed

: 3.20...3.80 travel mm

rpm : 750 3rd speed

: 4,60...4.90 travel mm

rpm : 1290 4th speed

travel mm : 8.40...8.60

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1290 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

Del.quantity : 86.0...87.0

1000 : (84.0...89.0)

cm3 : 3.00 Spread

1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 61...69

Testing: 1st rack travel in: 9.20 rpm : 1290...1300 Speed 2nd rack travel in: 4.00

Speed rpm : 1360...1390

4th rack travel in: 1500 Speed rpm: 0.00...1.00

LOW IDLE 1 Control lever position degrees: 9...17

Testing: Speed rpm: 100 Minimum rack trave: 7.90 Speed rpm: 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

rpm : 375...475 Speed

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 800 Speed Del.quantity cm3/: 83.5...86.5 1000 s: (81.5...88.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.20 Speed rpm : 1290...1300

INTERMEDIATE RATED SPEED

STARTING FUEL DELIVERY

Rack travel in mm: 4.00

rpm : 100 Speed

Del.quantity cm3/: 115.0...125.0

1000 s: (112.0...128.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 : 1- 10- 9- 4- 3- 6-5- 8- 7- 2 Firing order Note remarks Test sheet : KHD 15,8 c Edition : 22.04.88 Replaces : 9.82 : 0-27-72-99-144-171-Phasing : ISO-4113 216-243-288-315 Test oil Tolerance + - 0 : 0.50 (0.75) Combination no. : 0 400 649 208 Time to cyl. no. : 1 Injection pump : PE10A95D610/4L82452 BASIC SETTING Pump designation EP type number : 0 410 699 998 rpm : 1150 Governor 1st speed : RQV300...1150AB1047D Governor design. Rack travel in mm : 9.10...9.20 : 0 420 214 242 Governer no. Del.quantity cm3/: 8.1...8.3 Customer-spec. information 100 s: (7.9...8.5) Customer : F10L413FW Engine Spread cm3 : 0.3: 192.0 100 s: (0.6) 1st version kW : 2300 Rated speed rpm : 300.0 2nd speed Rack travel in mm: 6.4...6.6 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.0) Test oil inlet temp. OC : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 1 417 413 000 (B) Setting of injection pump with governor Inlet press., bar : 1.00 GUIDE SLEEVE TRAVEL rpm : 300 Test nozzle holder 1st speed assembly : 0 681 343 009 : 1.20...1.30 travel mm 2nd speed rpm : 395 travel mm : 2.20...2.60 Opening pressure, bar : 172...175 3rd speed rpm : 615 : 3.10...3.60 travel mm 4th speed rpm : 1195 : 8.40...8.50 Test lines : 1 680 750 014 travel mm 5th speed rpm : 1235 : 9.00...9.20 travel mm Outside diameter x Wall thickness : 6.00X2.00X600 GUIDE SLEEVE POSITION x Length mm Control-lever position Degree: -1 (A) Injection pump setting values rpm : 1180 Insp. values in parentheses Speed Rack travel in mm : 15.20...17.80 Set equal delivery quant. per values FULL LOAD DELIV. AT FULL LOAD STOP BEGINNING OF DELIVERY Test pressure, bar: 25...27 1st version rpm : 1150 Speed : 2.00...2.10 Del.quantity : 81.0...83.0 Prestroke mm : (1.95...2.15) 1000 : (79.0...85.0)

Spread

cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 8.10

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

rpm : 1235...1260 Speed

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 9...17

Testing:

Speed rpm : 100

Minimum rack trave: 8.00

: 300 rpm Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 320...425

TORQUE CONTROL

Dimension a mm : 1.00

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.10...9.20

2nd speed rpm

nd speed rpm : 500 Rack travel in m: 10.10...10.20

3rd speed rpm : 935

Rack travel in m: 9.80...10.00

4th speed rpm : 1045

Rack travel in m: 9.30...9.50

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 650 Speed rpm

Del.quantity cm3/: 93.5...96.5

1000 s: (91.0...99.0) rpm : 750

Speed rpm

Del.quantity cm3/: 84.5...87.5

1000 s: (82.0...90.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.10

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0) Rack travel in mm : 15.40...15.80

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

When accelerating from engine speed "O", no voltage in starting solenoid.
2. Set fuel delivery in fuel-delivery characteristics with stop above the governor housing.

APPLICATION

Below-ground operation

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1-10- 9- 4- 3- 6- 5-8- 7- 2 Note remarks : KHD 15,8 n1 Test sheet : 25.03.88 Edition : 7.12.87 : 0-27-72-99-144-171-Replaces Phasing : ISO-4113 216-243-288-315 Test oil Tolerance + - 0 : 0.50 (0.75) Combination no. : 0 400 649 219 Time to cyl. no. : 1 Injection pump Pump designation : PE10A95D610/4LS2589 BASIC SETTING EP type number : 0 410 699 994 Governor 1st speed rpm: 1150 Governor design.: RQV300...1150AB1047D Rack travel in mm : 9.30...9.40 : 0 420 214 242 Governer no. Del.quantity cm3/: 6.9...7.1 Customer-spec. information 100 s: (6.7...7.3) Customer : F10L413 FW cm3 : 0.3 Engine Spread : 177.0 1st version kW 100 s: (0.6) : 2300 Rated speed 2nd speed rpm : 300.0 Rack travel in mm : 7.2...7.4 TEST BENCH REQUIREMENTS Del.quantity cm3/ : 1.4...2.0 Test oil 100 s: (1.1...2.2) inlet temp. OC : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 1 417 413 000 (B) Setting of injection pump with governor Inlet press., bar: 1.00 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 300 : 0 681 343 009 assembly : 1.20...1.30 travel mm 2nd speed rpm: 400 : 2.20...2.60 Opening travel mm pressure, bar : 172...175 3rd speed rpm : 600 : 3.00...3.50 travel mm 4th speed rpm : 1195 : 8.40...8.50 Test lines : 1 680 750 014 travel mm 5th speed rpm : 1235 Outside diameter travel mm : 9.10...9.30 x Wall thickness : 6.00X2.00X600 GUIDE SLEEVE POSITION x Length mm Control-lever position (A) Injection pump setting values Degree: -1 rpm : 1190 Insp. values in parentheses Speed Rack travel in mm : 15.20...17.80 Set equal delivery quant. per values FULL LOAD DELIV. AT FULL LOAD STOP BEGINNING OF DELIVERY Test pressure, bar: 25...27 1st version Speed rpm : 1150 : 1.50...1.60 : 69.0...71.0 Prestroke mm Del.quantity 1000 : (67.0...73.0) : (1.45...1.65)

Spread

cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 61...69

Testing:

1st rack travel in: 8.30

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

Speed rpm : 1230...1260

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 10...18

Testing:

rpm : 100 Speed

Minimum rack trave: 7.80

Speed rpm : 300 Rack travel in mm : 7.20...7.40

CONSTANT REGULATION

rpm : 320...430 Speed

TORQUE CONTROL

Dimension a mm : 1.00

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.30...9.40

: 500 2nd speed rpm

Rack travel in m: 10.30...10.40

: 935 3rd speed rpm

Rack travel in m: 10.00...10.20

: 1045 4th speed rpm

Rack travel in m: 9.50...9.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

: 800 Speed rpm

Del.quantity cm3/: 75.5...78.5

1000 s: (73.0...81.0)

rpm : 650 Speed

Del.quantity cm3/ : 93.5...96.5

1000 s: (91.0...99.0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.30

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm: 15.40...15.80

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

When accelerating from engine speed "0", no voltage in starting solenoid.
2. Set fuel delivery in fuel-delivery characteristics with stop above the governor housing.

APPLICATION

Below-ground operation

Note remarks

: DAF 8,3 n 6 : 06.04.88 Test sheet Edition Replaces : 12.9.86 : ISO-4113 Test oil

Combination no. : D 400 676 185

Injection pump

Pump designation : PE6A95D410RS2575 EP type number : 0 410 696 984

Governor

: RSV250...1200A5C2198 Governor design.

-3L

: 0 420 232 452 Governer no.

Customer-spec. information Customer

Engine : DH 825

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm

: (1.95...2.15)

Rack travel in mm : 7.50...10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00 Difference O CS : 3.00...4.00

BASIC TING

rpm : 1200 1st speed

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 7.3...7.4

100 s: (7.1...7.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0 Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 0.7...1.1

100 s: (0.4...1.3)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

: 73.5...74.5 1000 : (71.5...76.5) Del.quantity

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 59...67

Testing:

1st rack travel in: 9.40 Speed rpm : 1240...1250 2nd rack travel in: 4.00 rpm : 1300...1330 Speed 3rd rack travel in: 4.00 Speed rpm : 1340...1370 4th rack travel in: 1505 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 24...32 Setting point w/out bumper spring rpm : 250° Rack travel in mm: 5.7 Speed rpm : 250 Rack travel in mm : 6.10...6.30 Rack travel in mm : 2.00 rpm : 655...715 TORQUE CONTROL Dimension a mm : 0.80 Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 10.40...10.50 2nd speed rpm : 500 Rack travel in m: 11.20...11.30 3rd speed rpm : 800 Rack travel in m: 11.10...11.20 4th speed rpm : 940 Rack travel in m: 10.70...11.00 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 800 Speed Del.quantity cm3/: 75.0...77.0 1000 s: (72.5...79.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.40 rpm : 1240...1250 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 135.0...145.0 1000 s: (132.0...148.0) Rack travel in mm : 19.50...21.00 LOW IDLE rpm : 250 Speed K25

Rack travel in mm : 6.10...6.30 Del.quantity cm3/ : 7.0...11.0 1000 s: (4.5...13.5) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Note remarks

Test sheet : MB 4,0 a 9 : 17.03.88 Edition

Replaces Test oil

: ISO-4113

Combination no.

: 0 400 844 090

Injection pump

Governor

Pump designation : PES4A90D410RS2666-2

Governor design.

: RQV300...1400AB1065-

Customer-spec. information

Customer

: DAIMLER-BENZ

Engine

: 0M364

1st version kW

: 66.0

Rated speed

: 2800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.0

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6,00x1,50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,25...2,35 : (2,2...2,4)
Rack travel in mm : 9,00...12,00

Firing order : 1-3-4-2

: 0-90-180-270 Phasing Tolerance + - 0 : 0,50(0,75)

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 10,90...11,00

Del.quantity cm3/: 6,3...6,4

100 s: (6,1...6,6)

cm3 : 0.3Spread

100 s: (0,5)

rpm : 300 2nd speed

Rack travel in mm : 8,60...8,80

Del.quantity cm3/ : 0,8...1,2

100 s: (0,6...1,4)

Spread cm3 : 0.2

100 s: (0,4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

travel mm : 0,8...1,3

rpm : 500 2nd speed

travel mm . 2,3...2,8

rpm : 750 3rd speed

3 4 , 1 , . . . 4 travel mm

: 1500 4th speed rpm

: 8,5...8,6 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1500 Speed Rack travel in mm : 15,20...17,80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

: 63,0...64,0 Del. quantity

1000 : (61,0...66,0)

: 3,0 Spread cm3

1000 : (5,0)

RATED SPEED

1st version

Control lever

position degrees: 59...67

Testing:

1st rack travel in: 9,90

rpm : 1450...1460 Speed 2nd rack travel in: 4.00 Speed rpm : 1560...1590

4th rack travel in: 1630 rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 20...28

Testing:

: 100 Speed rpm Minimum rack trave: 10,20 Speed : 300 rpm

Rack travel in mm : 8,60...8,80

CONSTANT REGULATION

rpm : 540...680 Speed

TORQUE CONTROL

Dimension a mm : 1,00

Torque control curve - 1st version

1st speed rpm : 1400

Rack travel in m: 10,90...11,00

2nd speed rpm : 630

Rack travel in m: 12,20...12,30 d speed rpm : 900

3rd speed rpm

Rack travel in m: 11,50...11,70

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 630 Speed rpm

Del.quantity cm3/: 55,5...58,5 1000 s: (53,0...61,0)

rpm_ ; 900 Speed

Del.quantity cm3/: 54.5...57.5 1000 s: (52.0...60.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9,90

rpm : 1450...1460 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 78,0...88,0

1000 s: (75.0...91.0) Rack travel in mm: 17.0...17.40

K27

Remarks:

Set shutoff stop to contact at 3.0...3.5 mm control-rod travel.

Note remarks

Test sheet : MAN 11.1 y : 25.03.88 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 400 846 325

Injection pump

Pump designation : PES6A95D410LS2409

EP type number : 0 410 896 962

Governor

Governor design. : RQ250/1150AB839DL

: 0 420 202 247 Governer no.

Customer-spec. information

Customer : MAN

: D2556MX/MXF Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 1.30...1.40 Prestroke mm

: (1.25...1.45)

Rack travel in mm : 9.00...12.00

: 1- 5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm : 1150 1st speed

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 11.7...11.9

100 s: (11.5...12.1)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 250.0 2nd speed

Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.8)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 600 Speed

Rack travel in mm : 15.40...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpin : 1150

Del.quantity : 117.5...119.5 1000 : (115.5...121.5)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Speed

Rack travel in mm: 15.9

Testing:

1st rack travel in: 11.50

rpm : 1195...1210 Speed

2nd rack travel in: 4.00

rpm : 1250...1280 Speed

3rd rack travel in: 4.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 250

Rack travel in mm: 6.5

Testing: Speed : 150 rpm Minimum rack trave: 7.20 rpm : 250 Speed Rack travel in mm : 6.40...6.60 Rack travel in mm: 2.00 rpm : 320...360 Speed TORQUE CONTROL Dimension a mm : 0.20 Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 11.50...11.60 2nd speed rpm : 500 Rack travel in m: 11.90...12.00 3rd speed rpm : 925 Rack travel in m: 11.80...11.90 4th speed rpm : 1000 Rack travel in m: 11.50...11.70 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 800 Del.quantity cm3/: 116.0...119.0 1000 s: (114.0...121.0) Speed rpm : 500 Del.quantity cm3/: <118.5 1000 s: (<120.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.50 rpm : 1195...1210 Speed INTERMEDIATE RATED SPEED Rack travel in mm: 4,00 STARTING FUEL DELIVERY

Rack travel in mm : 13.70...14.30

Remarks:

Set idle stop at 250 min -1 to a control-rod travel of 6.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks : MB 5.7 v 10 : 25.03.88 Test sheet : 0-60-120-180-240-300 Edition Phasing : 18.9.87 Replaces Tolerance + - 0 Test oil : ISO-4113 : 0.50 (0.75) : 0 400 846 493 Combination no. BASIC SETTING Injection pump 1st speed rpm: 1400 Pump designation : PES6A90D410RS2596 EP type number : 0 410 896 073 Rack travel in mm : 11.90...12.00 Governor Del.quantity cm3/: 7.3...7.4 Governor design. : RQV300...1400AB1120-100 s: (7.1...7.6) : 0 420 212 157 Governer no. cm3 : 0.3Customer-spec. information Spread Customer : DAIMLER-BENZ 100 s: (0.4) Engine : 0M352A 2nd speed rpm : 300.0 Rack travel in mm : 8.5...8.7 1st version kW : 124.0 Del.quantity cm3/: 0.9...1.5 : 2800 Rated speed 100 s: (0.7...1.7) TEST BENCH REQUIREMENTS cm3 : 0.2Spread 100 s: (0.4) Test oil inlet temp. OC GUIDE SLEEVE POSITION : 38...42 Control-lever position Overflow valve Degree: -1 rpm : 1500 : 1 417 413 000 Speed Rack travel in mm: 15.20...17.80 Inlet press., bar: 1.00 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : 0 681 343 009 assembly 1st version rpm : 1400 Speed Aneroid pressure h: 700 Opening : 73.5...74.5 Del.quantity pressure, bar : 172...175 1000 : (71.5...76.5) : 3.00 cm3 Spread Test lines : 1 680 750 014 1000 : (4.50) RATED SPEED Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm 1st version Control lever position degrees: 59...67 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. Testing: per values 1st rack travel in: 10.90 rpm : 1440...1450 Speed 2nd rack travel in: 4.00 BEGINNING OF DELIVERY rpm : 1570...1600 Test pressure, bar: 25...27 Speed 4th rack travel in: 1750 rpm : 0.00...1.00 : 2.00...2.10 Prestroke mm Speed : (1.95...2.15)

L02

LOW IDLE 1 Control lever

position degrees: 22...30

Testing:

rpm : 100 Speed Minimum rack trave: 10.10 Speed rpm : 300

Rack travel in mm : 8.50...8.70

CONSTANT REGULATION

rpm : 590...660 Speed

TORQUE CONTROL

Dimension a mm : 1.10

Torque control curve - 1st version

1st speed rpm : 1400

Rack travel in m: 11.90...12.00 2nd speed rpm : 500 Rack travel in m: 13.00...13.10

3rd speed rpm : 1000

Rack travel in m: 12.70...12.90

4th speed rpm : 1200

Rack travel in m: 12.10...12.40

Aneroid/Altitude Compensator Test

1st version

Setting Speed

Pressure

rpm : 500 hPa : 700

Rack travel mm : 13.00...13.10

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 12.00...12.10

2nd pressure hPa : 320

Rack travel in m: 12.70...12.80

3rd pressure hPa : 220

Rack travel in m: 12.20...12.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

rpm : 500 Speed

Del.quantity cm3/: 67.5...69.5 1000 s: (65.5...71.5)

Aneroid pressure h: -

rpm ; 500 Speed

Del.quantity cm3/: 56.0...58.0 1000 s: (54.0...60.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 1440...1450

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 71.0...81.0 1000 s: (68.0...84.0) Rack travel in mm : 14.90...15.30

Remarks:

Set shutoff stop to contact at 3.0...3.5 mm control-rod travel. BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks : MAN 11,4 64 : 0-60-120-180-240-300 Test sheet Phasing : 19.04.88 Edition Tolerance + - 0 : 22.1.88 : 0.50 (0.75) Replaces Test oil : ISO-4113 Time to cyl. no. : 6 Combination no. : 0 400 846 532 BASIC SETTING Injection pump rpm: 700 Pump designation : PES6A95D410LS2639-1 1st speed EP type number : 0 410 896 920 Rack travel in mm: 14.30...14.40 Governor Governor design. : RQ250/1100AB1137-9L Governer no. : 0 420 200 091 Del.quantity cm3/: 13.0...13.2 100 s: (12.8...13.4) Customer-spec. information Customer cm3 : 0.3Spread Engine : D2566MF/220 100 s: (0.6) : 162.0 1st version kW 2nd speed rpm : 250.0 Rack travel in mm : 7.4...7.6 : 2200 Rated speed TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.0...1.6 100 s: (0.7...1.8) cm3 : 0.3Test oil Spread inlet temp. OC : 38...42 100 s: (0.5) GUIDE SLEEVE POSITION Overflow valve : 1 417 413 000 Control-lever position Degree: -1 rpm : 600 Inlet press., bar: 1.00 Speed Rack travel in mm : 15.60...16.40 Test nozzle holder : 0 681 343 009 FULL LOAD DELIV. AT FULL LOAD STOP assembly 1st version Opening rpm : 700 : 172...175 pressure, bar Speed : 130.0...132.0 Del.quantity 1000 : (128.0...134.0) : 1 680 750 014 cm3 : 3.50 Test lines Spread 1000 : (6.00) Outside diameter x Wall thickness RATED SPEED : 6.00x2.00x600 x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Setting point: : 600 Set equal delivery quant. Speed rpm per values ____

Rack travel in mm: 16.0

Testing:

1st rack travel in: 11.80

Speed rpm : 1145...1160

2nd rack travel in: 4.00

rpm : 1240...1270 Speed

4th rack travel in: 1350

L04

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 1.50...1.60

: (1.45...1.55)

rpm : 0.00...1.00 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 250 Speed Rack travel in mm: 7.5 Testing: : 100 Speed rpm Minimum rack trave: 8.90 Speed rpm: 250 Rack travel in mm: 7.40...7.60 Rack travel in mm: 2.00 rpm : 390...430 Speed TORQUE CONTROL Dimension a mm : 0.60 Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 12.80...12.90 2nd speed rpm : 600 Rack travel in m: 14.30...14.40 3rd speed rpm : 865 Rack travel in m: 13.80...14.00 4th speed rpm : 940 Rack travel in m: 13.10...13.30 FUEL DELIVERY CHARACTERISTICS 1st version rom : 500 Speed Del.quantity cm3/: 130.0...133.0 1000 s: (127.5...135.5) rpm : 1100 Speed Del.quantity cm3/: 122.0...126.0 1000 s: (119.5...128.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.80 Speed rpm : 1145...1160 STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 105.0...115.0 1000 s: (102.0...118.0) Remarks:

: MAN-NR. 2-7514

Note remarks

Test sheet : CAS 5,5 d Edition : 10.5.88

Replaces

Test oil : ISP-4113

Combination no. : 0 400 874 212

Injection pump

Pump designation : PES4A85D420LS2459

Governor

Governor design.: RSV375...1000A2B782

Customer-spec. information Customer : CASE

Engine : A-336 BD

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: WS 187P (CASE)

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 9 681 230 706

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 2.05...2.15

: (2.00...2.20)

: 1-3-4-2 firing order

: 0-90-180-270 Phasing Tolerance + - 0 : 0.5 (0.75)

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.60...1.70

Del.quantity cm3/ : 7.5...7.7

100 s: (7.4...7.8)

cm3 : 0.3Spread

100 s: (-)

2nd speed rpm : 375 Rack travel in mm : 7.40...7.60 Del.quantity cm3/ : 1.4...2.0

100 s: -

Spread cm3 : (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm: 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

: 75.0...77.0 Del.quantity

1000 : (74.0...78.0)

Spread cm3 : 3.0 1000 : (-)

RATED SPEED

1st version Control lever

position degrees: 36...44

Testing:

1st rack travel in: 10.60

rpm : 1040...1050 Speed

2nd rack travel in: 3.80

Speed rpm : 1105...1135 4th rack travel in: 1150

rpm : 0.40...2.60 Speed

LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm: 7.50 Testing: : 150 Speed rpm Minimum rack trave: 19.00 : 375 Speed rpm Rack travel in mm : 7.30...7.70 Rack travel in mm: 2.70 : 435...465 Speed rom : 550 Speed rpm Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 11.60...11.70 2nd speed rpm : 680 Rack travel in m: 12.00...12.20 3rd speed rpm : 400 Rack travel in m: 12.00...12.20 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750
Del.quantity cm3/ : 75.0...79.5 1000 s: (74.0...80.5) cm3 : Spread 1000 s: (-) : 650 Speed rpm Del.quantity cm3/: <79.2 1000 s: (-) Spread cm3 : -1000 s: (-) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.60 rpm : 1040...1050 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 125.0...130.0 1000 s: (-) HIGH IDLE 1st version Speed rpm : 1100 Del.quantity cm3/: 10.4...16.4 1000 s: (-) LOW IDLE

L07

Speed rpm : 375
Del.quantity cm3/: 14.0...20.0
1000 s: (-)

Remarks:

: CASE NO. A-139028

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 4.0 b 1 : 25.03.88 Test sheet Edition Replaces : 26.2.88 : ISO-4113 Test oil Combination no. : 0 400 874 246 Injection pump Pump designation : PES4A90D410RS2666 EP type number : 0 410 894 029 Governor : RSV350...1250A0C2006 Governor design. -5L : 0 420 232 497 Governer no. Customer-spec. information : DAIMLER-BENZ Customer : 0M364 Engine 1st version kW : 63.0 Rated speed : 2500 TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.00 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parchtheses Set equal delivery quant. per values ____

Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2 : 0-90-180-270 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING 1st speed rpm : 1230 Rack travel in mm: 10.70...10.80 Del.quantity cm3/ : 6.2...6.3 100 s: (6.0...6.5) cm3 : 0.3Spread 100 s: (0.5) 2nd speed rpm : 350.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/: 1.0...1.4 100 s: (0.8...1.6) Spread cm3 : 0.2100 s: (0.4) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 5.25 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1230 Speed : 62.0...63.0 Deliquantity 1000 : (60.0...65.0) : 3.00 cm3 Spread 1000 : (5.00) RATED SPEED 1st version Control lever position degrees: 58...66 Testing: 1st rack travel in: 9.70 Speed rpm : 1270...1280 2nd rack travel in: 4.00 rpm : 1350...1380 Speed 4th rack travel in: 1520

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

: 2,25,...2,35

: (2.20...2.40)

Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 31...39 Setting point w/out bumper spring rpm : 350' Rack travel in mm: 8.0 Testing: Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm: 350 Rack travel in mm : 7.90...8.10 Rack travel in mm: 2.00 rpm : 480...540 Speed SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1230 Rack travel in m: 10.70...10.80 2nd speed rpm : 500
Rack travel in m: 12.00...12.10
3rd speed rpm : 800 Rack travel in m: 11.50...11.70 4th speed rpm : 1000 Rack travel in m: 11.00...11.30 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 500 Del.quantity cm3/ : 54.0...56.0 1000 s: (51.5...58.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.70 rpm : 1270...1280 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm: 16.30...16.70 LOW IDLE Speed rpm : 350 Rack travel in mm : 7.90...8.10

L09

Del.quantity cm3/: 10.0...14.0 1000 s: (8.0...16.0)

Spread cm3 : 2.50 1000 s: (4.50)

Remarks:

Note remarks

Test sheet : DEE 6,6 f : 15.5.88 Edition

Replaces

Test oil

: ISO-4113

Combination no. : 0 400 876 186

Injection pump

Pump designation : PES6A95D410RS2380

Governor

Governor design.: RSV400...1100A2B647

Customer-spec. information

Customer

: JOHN DEERE

Engine

: 6404 T

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 413 385 007

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 9 681 230 706 Test lines

Outside diameter

x Wall thickness

x Length mm : 6,00X2,00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 1.90...2.00 Prestroke mm

: (1.85...2.05)

Rack travel in mm : 9.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 9.00...9.10

Del.quantity cm3/ : 7.8...8.2

100 s: (-)

Spread cm3 : 0.4

100 s: (-)

rpm : 200 2nd speed

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 0.7...1.5

100 s: (-)

cm3 : -Spread

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...1.40

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1100

Aneroid pressure h: 700

Del.quantity : 86.0...92.0 1000 : (84.0...94.0)

cm3 : 4.0

Spread 1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 16.00

Speed rpm : 1100 2nd rack travel in: 12.30

Speed rpm : 1140...1150

3rd rack travel in: 8.00

rpm : 1185...1215 Speed

LOW IDLE 1

Control lever position degrees: 17...25 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.60 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 400 Rack travel in mm : 5.40...5.80 Rack travel in mm : 2.65 rpm : 530...570 rpm : 750 Speed Speed rpm : 750 Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: -2nd speed rpm : 900 Rack travel in m: 0.30...0.50 3rd speed rpm : 750 Rack travel in m: 0.70...1.00 4th speed rpm : 450
Rack travel in m: 0.70...1.00 Aneroid/Altitude Compensator Test

1st version Setting : 550 Speed rpm hPa : 145 Pressure Rack travel mm : MIN.

Measurement

1/min : 550 Speed

1st pressure hPa : 435 Rack travel in m: MAX.

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 700 : 750 Speed rom Del.quantity cm3/: 96.0...101.0 1000 s: (94.0...103.0) Spread cm3 : -1000 s: (-) Aneroid pressure h: -: 550 Speed rpm Del.quantity cm3/: 64.0...70.0 1000 s: (62.0...72.0) cm3 : -Spread 1000 s: (-)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: ?

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 160.0 1000 s: (-)

HIGH IDLE

1st version

rpm : 1200 Speed Del.quantity cm3/: 21.0...30.0 1000 s: (-)

LOW IDLE

Speed rpm : 400 Del.quantity cm3/: 12.0...16.0

1000 s: (-)

Remarks:

: 4430

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm. **APPLICATION**

Tractor (tractor engines)

Note remarks

: MB 5.7 s 1 : 25.03.88 Test sheet Edition Replaces : 12.9.86 Test oil : ISO-4113

Combination no. : 0 400 876 218

Injection pump

Pump designation : PES6A90D410RS2293 EP type number : 0 410 896 031

Governor

Governor design.: RSV350...1400A0C1080

: 0 420 232 408 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

: OM 352 Engine

1st version kW : 92.0 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

assembly : 0 681 343 009

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25

: (2.10...2.30)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1400 1st speed

Rack travel in mm : 9.70...9.80

Del.quantity cm3/: 6.3...6.4

100 s: (6.1...6.6)

Spread cm3 : 0.3

100 s: (0.4)

2nd speed rpm : 350.0 Rack travel in mm : 6.6...7.2 Del.quantity cm3/ : 1.0...1.2

100 s: (0.8...1.4)

cm3 : 0.2Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

Del.quantity : 63.0...64.0 1000 : (61.0...66.0)

cm3 : 3.00Spread

1000 : (4.50)

RATED SPEED

1st version Control lever

position degrees: 68...76

Testing:

1st rack travel in: 8.70

Speed rpm: 1440...1445 2nd rack travel in: 4.00

rpm : 1473...1486 Speed

3rd rack travel in: 4.00

```
Speed
            rpm : 1510...1540
4th rack travel in: 1570
        rpm : 0.30...1.40
  Speed
Sth rack travel in: 1445...1455
Speed rpm : 8.70
LOW IDLE 1
Control lever
 position degrees: -3
Setting point w/out bumper spring
        rpm : 350°
Speed
Rack travel in mm: 6.80
Testing:
Speed
            rpm : 100
Minimum rack trave: 19.50
           rpm : 350
Speed
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed
            rpm : 450...510
TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 9.70...9.80
2nd speed rpm : 600
  Rack travel in m: 9.90...10.10
FUEL DELIVERY CHARACTERISTICS
1st version
Speed
           rpm
                 : 600
Del.quantity cm3/: 51.0...53.0
            1000 s: (49.0...55.0)
            rpm : 850
Speed
Del.quantity cm3/: 56.0...58.0
1000 s: (53.5...60.5)
STARTING FUEL DELIVERY
            rpm : 100
Speed
Del.quantity cm3/: 78.0...88.0
            1000 s: (75.0...91.0)
Rack travel in mm : 15.00...15.40
LOW IDLE
            rpm : 350
Speed
Rack travel in mm : 6.60...7.20
Del.quantity cm3/ : 10.0...12.0
            1000 s: (8.0...14.0)
             cm3 : 2.50
Spread
            1000 s: (4.50)
Remarks:
```

Note remarks

Test sheet : DEE 6,6 e : 2.5.88 Edition : 9.76 Replaces

: ISO-4113 Test oil

Combination no. : 0 400 876 244

Injection pump

Pump designation : PES6A95D410RS2479

Governor

: RSV400...1100A2B768D Governor design.

Customer-spec. information

Customer : JOHN DEERE

: 6404 T Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 413 385 007

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6,00x2,00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

: 1.90...2.00 Prestroke mm

: (1.85...2.05)

Rack travel in mm : 9.80...9.90 : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.80...9.90

Del.quantity cm3/: 8.8...9.0

100 s: (8.5...9.3)

cm3 : 0.3Spread

100 s: (-)

rpm : 400 2nd speed Rack travel in mm : ?

Del.quantity cm3/: 1.2...1.6

100 s: (-)

cm3 : 0.3Spread 100 s: (-)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 700

: 87.0...91.0 Del.quantity 1000 : (85.0...93.0)

cm3 : 3.0 Spread 1000 : (-)

RATED SPEED

1st version Control lever

position degrees: 40...48

Testing:

1st rack travel in: 8.80

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1285...1315 Speed

4th rack travel in: 1300...1350 : 0.30...1.00 Speed man

LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring rpm : 400 Speed Rack travel in mm: 5.70 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.40...5.80 Rack travel in mm : 2.60 rpm : 530...570 rpm : 750 Speed Speed Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 9.80...9.90 2nd speed rpm : 900 Rack travel in m: 10.10...10.30 3rd speed rpm : 750 Rack travel in m: 10.50...10.90 4th speed rpm : 450 Rack travel in m: 10.50...10.90 Aneroid/Altitude Compensator Test 1st version Setting Speed : 550 rpm Pressure hPa : 150 Rack travel mm Measurement Speed 1/min : 550 1st pressure hPa : 430 Rack travel in m: 9.80...9.90 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 750 Speed Del.quantity cm3/: 96.0...101.0 1900 s: (94.0...103.0) Spread cm3 : -1000 s: (-) Aneroid pressure h: -: 500 rpm

Del.quantity cm3/: 63.5...70.5

cm3 : -

1000 s: (-)

1000 s: (61.5...72.5)

1st version 1mm rack travel less than

full load rack tr: 8.80 rpm : 1140...1155 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 160.0 1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200 Del.quantity cm3/: 20.0...30.0 1000 s: (-)

LOW IDLE

: 400 Speed rpm Del.quantity cm3/: 12.0...16.0 1000 s: (-)

Remarks:

: 4430

Start-of-delivery mark at 140 angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm. **APPLICATION**

Tractor (tractor engines)

BREAKAWAY

Spread

Note remarks

Test sheet : DEE 7,7 a Edition : 16.5.88

Replaces : ISO-4133 Test oil

Combination no. : 0 400 876 272

Injection pump

Pump designation : PES6A95D410RS2545

Governor

Governor design. : RSV400...1100A7B2026

Customer-spec. information

Customer : JOHN DEERE

Engine : 6466 T

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 413 385 007

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pamp setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 1.85...1.95 Prestroke mm

: (1.80...2.00)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.5(0.75) Phasing

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1080

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 9.4...9.8

100 s: (9.2...10.0)

. _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

cm3 : 0.3Spread

100 s: (-)

rpm : 400 2nd speed

Rack travel in mm : 5.70...5.90

Del.quantity cm3/: 1.2...1.6

100 s: (-)

cm3 : -Spread 100 s: (-)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1080 Speed

Del.quantity

94.0...98.0 1000 : (92.0...100.0)

cm3 : 3.0Spread

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 66...74

Testing:

1st rack travel in: 9.20

rpm : 1115...1125 Speed

2nd rack travel in: 5.00 Speed rpm: 1130...1160

4th rack travel in: 1200

rpm : 0.30...1.70 Speed

LOW IDLE 1

Control lever

```
position degrees: 25...33
Setting point w/out bumper spring
            rpm : 400°
Rack travel in mm: 5.80
Testing:
           rpm : 100
Speed
Minimum rack trave: 19.00
            rpm : 400
Speed
Rack travel in mm : 5.70...5.90 Rack travel in mm : 2.00
            rpm : 520...580
Speed
TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.20...10.30
2nd speed rpm : 750
  Rack travel in m: 10.20...10.40
3rd speed rpm : 450
  Rack travel in m: 10.90...11.50
BREAKAWAY
1st version
1mm rack travel less than
 full load rack tr: 9.20
          rpm : 1115...1125
Speed
STARTING FUEL DELIVERY
            rpm : 100
Speed
Del.quantity cm3/: 160.0...190.0
             1000 s: (-)
HIGH IDLE
1st version
Speed rpm : 1145
Del.quantity cm3/ : 23.0...33.0
             1000 s: (-)
LOW IDLE
Speed rpm : 400 Del.quantity cm3/ : 12.0...16.0
             1000 s: (-)
Remarks:
Start-of-delivery mark = 15.5° after
start of delivery cyl. 1.
```

Generator

APPLICATION

L17

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1-5- 3- 6- 2- 4 Note remarks : MB 6.0 c 2 : 25.03.88 Test sheet Edition : 0-60-120-180-240-300 Phasina Replaces : 11.12.87 Tolerance + - 0 Test oil : ISO-4113 : 0.50 (0.75) Combination no. : 0 400 876 335 BASIC SETTING Injection pump rpm: 1200 1st speed Pump designation : PES6A90D410RS2710 EP type number : 0 410 896 082 Rack travel in mm : 9.30...9.40 Governor Governor design. : RSV350...1200A1C1154 Del.quantity cm3/ : 5.1...5.2 : 0 420 232 468 100 s: (4.9...5.4) Governer no. cm3 : 0.3Customer-spec. information Spread : DAIMLER-BENZ Customer 100 s: (0.4) : OM 366 Engine 2nd speed rpm : 370.0 Rack travel in mm : 7.9...8.5 1st version kW : 74.0 Del.quantity cm3/: 1.0...1.2 Rated speed : 2400 100 s: (0.8...1.4) cm3 : 0.2 TEST BENCH REQUIREMENTS Spread 100 s: (0.4) Test oil inlet temp. OC : 38...42 GUIDE SLEEVE POSITION Overflow valve Governor spring pre-tension : 1 417 413 000 Click setting x: 5.00 FULL LOAD DELIV. AT FULL LOAD STOP Inlet press., bar: 1.00 Test nozzle holder 1st version : 0 681 343 009 rpm : 1200 assembly Speed Del.quantity : 51.0...52.0 1000 : (49.0...54.0) Opening cm3 : 3.00 1000 : (4.50) pressure, bar : 172...175 Spread Test lines : 1 680 750 015 RATED SPEED Outside diameter 1st version x Wall thickness Control lever : 6.00x1.50x600 x Length mm position degrees: 59...67 Testing: (A) Injection pump setting values Insp. values in parentheses 1st rack travel in: 8.30 Set equal delivery quant. rpm : 1240...1245 Speed 2nd rack travel in: 4.00

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35 : (2.20...2.40)

Speed rpm : 1300...1330 4th rack travel in: 1400 rpm : 0.30...1.40 Speed 5th rack travel in: 1255...1265

3rd rack travel in: 4.00

Speed

rpm : 1261...1274

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Speed
            rpm : 8.30
LOW IDLE 1
Control lever
 position degrees: -3
Setting point w/out bumper spring
          rpm : 370
Speed
Rack travel in mm: 8.20
Testing:
Speed
            rpm
                 : 100
Minimum rack trave: 19.50
Speed
                : 370
            rpm
Rack travel in mm : 8.10...8.30
Rack travel in mm : 2.00
Speed
            rpm : 460...520
TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1200
  Rack travel in m: 9.30...9.40
2nd speed rpm : 600
  Rack travel in m: 10.30...10.50
3rd speed rpm : 900
  Rack travel in m: 9.80...10.10
FUEL DELIVERY CHARACTERISTICS
1st version
                 : 600
Speed
            rpm
Del.quantity cm3/: 41.0...43.0
            1000 s: (38.5...45.5)
            rpm : 900
Speed
Del.quantity cm3/: 46.0...49.0
            1000 s: (43.5...51.5)
STARTING FUEL DELIVERY
Speed rpm : 100
Del.quantity cm3/ : 85.0...95.0
            1000 s: (82.0...98.0)
Rack travel in mm : 17.30...17.70
LOW IDLE
Speed rpm : 370
Rack travel in mm : 7.90...8.50
Del.quantity cm3/: 10.0...12.0
            1000 s: (8.0...14.0)
             cm3 : 2.50
Spread
            1000 s: (4.50)
Remarks:
APPLICATION
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BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.95...3.05 Prestroke mm : (2.90...3.10) Note remarks Rack travel in mm : 10.50...10.50 : 1-5-3-6-2-4 Test sheet : DEE 7,6 W Firing order Edition : 14.01.88 Replaces : ISO-4113 Test oil : 0-60-120-180-240-300 Phasing Combination no. : 0 400 876 345 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PES6A1000410RS2754 Time to cyl. no. : 1 EP type number : 0 410 806 002 Governor BASIC SETTING : RSV400...1100A2C2229 Governor design. rpm: 1100 1st speed : 0 420 232 492 Governer no. Rack travel in mm : 12.00...12.10 Customer-spec. information Del.quantity cm3/: 12.0...12.2 : JOHN DEERE Customer : 6076 TF 100 s: (11.8...12.4) Engine cm3 : 0.3 : 142.0 Spread 1st version kW : 2200 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 400.0 2nd speed Rack travel in mm: 5.0...5.2 Test oil Del.quantity cm3/: 1.2...1.6 inlet temp. OC : 38...42 100 s: (0.9...1.8) Overflow valve cm3 : 0.3Spread : 1 457 413 010 100 s: (0.5) GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Degree: -3 Test nozzle holder rpm : 800 : 1 688 901 101 assembly Speed Rack travel in mm : 0.30...0.70 Openina FULL LOAD DELIV. AT FULL LOAD STOP : 207...210 pressure, bar 1st version Orifice plate rpm : 1100 Speed diameter mm : 0,6 : 120.0...122.0 Del.quantity 1000 : (118.0...124.0) Test lines : 1 680 750 014 cm3 : 3.50 Spread 1000 : (6.00) Outside diameter x Wall thickness RATED SPEED : 6.00x2.00x600 x Length mm 1st version (A) Injection pump setting values Control lever position degrees: 40...48

Testing:

Speed

1st rack travel in: 11.00

2nd rack travel in: 4.00

rpm : 1145...1155

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

per values

Insp. values in parentheses Set equal delivery quant.

L20

Speed : 1205...1215 rpm 3rd rack travel in: 4.00 4th rack travel in: 1300 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 4.6 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm: 5.00...5.20 Rack travel in mm : 2.00 : 550...610 Speed rom TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 12.00...12.10 2nd speed rpm : 700 Rack travel in m: 13.90...14.10 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 700 Del.quantity cm3/ : 151.0...154.0 1000 s: (148.5...156.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.00 Speed rpm : 1145...1155 STARTING FUEL DELIVERY Speed rpm_ : 100 Del.quantity cm3/: 130.0...150.0 1000 s: (125.0...155.0) Rack travel in mm : 19.00...21.00

rpm : 400

cm3 : 3.50

1000 s: (5.50)

1000 s: (9.5...18.5)

Rack travel in mm : 5.00...5.20 Del.quantity cm3/ : 12.0...16.0

Remarks:

Adjustment without torque-control spring retainer with 1 mm less Start-of-delivery mark = 12,5° after start of delivery cyl. 1. rque-control spring retainer.

LOW IDLE

Speed

Spread

Note remarks

Test sheet : DEE 7,6 x Edition : 14.01.88

Replaces

Test oil : ISO-4113

Combination no. : 0 400 876 348

Injection pump

Pump designation : PES6A1000410RS2754

EP type number : 0 410 806 002

Governor

: RSV400...1100A2C2204 Governor design.

-2L

: 9 420 234 177 Governer no.

Customer-spec. information

Customer : JOHN DEERE

: 6466 TT Engine

1st version kW : 124.0

: 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 130...150

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.95...3.05 Prestroke mm

: (2.90...3.10)

Rack travel in mm : 10.50...10.50 Firing order : 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 10.5...10.7

100 s: (10.3...10.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm: 4.9...5.1

Del.quantity cm3/: 1.2...1.6

100 s: (0.9...1.8)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 105.0...107.0 Del.quantity 1000 : (103.0...109.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 10.00 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 Speed rpm : 1205...1215 4th rack travel in: 1300 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 20...28 Setting point w/out bumper spring rpm : 400° Rack travel in mm: 4.5 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 4.90...5.10 Rack travel in mm: 2.00 : 560...620 rpm TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 11.00...11.10 2nd speed rpm : 700 Rack travel in m: 12.10...12.30 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm: 700 Del.quantity cm3/: 127.5...130.5 1000 s: (125.0...133.0) BREAKAWAY 1st version 1mm rack travel less than

full load rack tr: 10.00 rpm : 1140...1150 Speed STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0 1000 s: (125.0...155.0) Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed rpm : 400 Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 12.0...16.0 1000 s; (9.5...18.5)

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

Adjustment without torque-control spring retainer with 1 mm less Start-of-delivery mark = 12,5° after start of delivery cyl. 1. rque-control spring retainer.

Note remarks

: CAS 8,3 a 9 Test sheet : 5.5.88 Edition Replaces : 12.74 : ISO-4113 Test oil

Combination no. : 0 401 276 029

Injection pump

Pump designation : PES6A95D420LS3024

Governor

: RSV375...1100A2B659 Governor design.

Customer-spec. information Customer : CASE

Engine : A 504 BDT

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: WS 187P (CASE)

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening.

pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm : (1.95...2.15)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 : 0.5 (0.75) Phasing

Tolerance + - 0

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.35...12.45

Del.quantity cm3/: 13.6...13.8

100 s: (13.4...14.0)

Spread cm3 : 0.4

100 s: (-)

2nd speed rpm : 375
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 1.6...2.2

100 s: (-)

cm3 : -Spread 100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm: 0.30...1.00

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 136.0...138.0 Del.quantity

1000 : (134.0...140.0)

Spread cm3 : 4.0 1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 11.35

rpm : 1140...1155 Speed

2nd rack travel in: 3.60

rpm : 1180...1220 Speed

4th rack travel in: 1280

rom : 0.20...1.20 Speed

LOW IDLE 1

Control lever

position degrees: 15...23

Setting point w/out bumper spring

Speed rpm Rack travel in mm: 5.90 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm: 375
Rack travel in mm: 5.80...6.00 Speed : 550 rpm Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 12.35...12.45 2nd speed rpm : 750 Rack travel in m: 12.65...12.75 3rd speed rpm : 400 Rack travel in m: 12.90...13.20 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/ : 144.0...147.0 1000 s: (142.0...149.0) Spread cm3 : -1000 s: (-) rpm : 650 Speed Del.quantity cm3/: <147.0 1000 s: (-) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.35 rpm : 1140...1155 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 130.0...140.0 1000 s: (-) HIGH IDLE

: 1200

rpm : 375

rpm Del.quantity cm3/: 21.0...27.0 1000 s: (-) Del.quantity cm3/: 16.5...22.5 1000 s: (-)

Remarks:

: 2470

Adjustment without torque-control spring retainer with 1 mm less APPLICATION travel. Increase in Tractor (tractor engines) rque-control pring retainer.

1st version

Speed

LOW IDLE

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : VOL 10,0 b5 Edition : 06.04.88 Replaces : ISO-4113 Test oil Combination no. : 0 401 846 286V Injection pump Pump designation : PE6P100A320RS100V EP type number : 0 411 806 123 Governor : RQV250...1100PA232/2 Governor design. : 0 421 813 134 Governer no. Customer-spec. information Customer : VOLVO : T(H)D 100 Engine TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 004 Outside diameter x Wall thickness : 6.00X1.50X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 2.60...2.70 Prestroke mm : (2.55...2.75) Rack travel in mm : 9.00...12.00 : 1-5- 3- 6- 2- 4 firing order L26

: 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 700 Rack travel in mm : 13.00...13.10 Del.quantity cm3/: 14.5...14.7 100 s: (14.3...14.9) cm3 : 0.4Spread 100 s: (0.6) rpm : 250.0 2nd speed Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.1...1.5 100 s: (0.8...1.7) cm3 : 0.2Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1100 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 700 Speed Aneroid pressure h: 500 : 145.0...147.0 Del.quantity 1000 : (143.0...149.0) cm3 : 4.00 Spread 1000 : (6,00) RATED SPEED 1st version Control lever position degrees: 43...51 Testing: 1st rack travel in: 12,00 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1230...1260 Speed 4th rack travel in: 1350 Speed : 0.00...1.00 rom

LOW IDLE 1

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Control lever
 position degrees: 8...16
Testing:
                 : 100
Speed
            rpm
Minimum rack trave: 7.60
            rpm : 250
Speed
Rack travel in mm : 5.90...6.10
Rack travel in mm: 2.00
            rpm : 320...380
Speed
Aneroid/Altitude
 Compensator Test
1st version
Setting
             rpm : 500
hPa : 500
Speed
            rom
Pressure
Rack travel mm : 13.00...13.10
Measurement
          1/min : 500
Speed
1st pressure hPa : -
  Rack travel in m: 10.80...11.00
2nd pressure hPa : 240
  Rack travel in m: 12.70...12.90
3rd pressure hPa : 80
  Rack travel in m: 11.20...11.30
FUEL DELIVERY CHARACTERISTICS
1st version
Aneroid pressure h: -
           rpm : 700
Speed
Del.quantity cm3/: 105.0...107.0
            1000 s: (103.0...109.0)
BREAKAWAY
1st version
1mm rack travel less than
 full load rack tr: 12.00
           rpm : 1140...1150
Speed
LOW IDLE
            rpm : 250
Speed
Rack travel in mm : 5.90...6.10
Del.quantity cm3/: 11.0...15.0
1000 s: (8.5...17.5)
Spread cm3 : 2.50
            1000 s: (5.00)
Remarks:
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BOSCH INJ. PUMP TEST SPECIFICATIONS	Prestroke mm : 3.503.60 : (3.453.65)
Note remarks	Rack travel in mm : 9.0012.00 Firing order : 1-5-3-6-2-4
Test sheet : MB 11,6 a Edition : 29.04.88 Replaces : 11.85 Test oil : ISO-4113	Printing Groser
Combination no. : 0 401 846 494	 Tolerance + - ° : 0.50 (0.75)
Injection pump Pump designation : PE6P100A720RS473 EP type number : 0 411 806 196 Governor	Time to cyl. no. : 1 BASIC SETTING
Governor design. : RQ300/1100PA269-1 Governer no. : 0 421 801 237	1st speed rpm : 1100
Customer-spec. information	Rack travel in mm : 12.7012.80
Customer : DAIMLER-BENZ	Del.quantity cm3/: 12.512.7
Engine : OM 355	100 s: (12.312.9)
1st version kW : 177.0 Rated speed : 2200	Spread cm3 : 0.3
Rated speed : 2200 TEST BENCH REQUIREMENTS	100 s: (0.6)
	2nd speed rpm : 300.0
Test oil inlet temp. °C : 3842	<pre>! Rack travel in mm : 8.18.3 ! Del.quantity cm3/ : 1.72.3 ! 100 s: (1.42.5)</pre>
Overflow valve : 1 417 413 025	Spread cm3 : 0.3 100 s: (0.5)
Inlet press., bar : 1.50	GUIDE SLEEVE POSITION Control-lever position
Overflow quantity min. 1/h: 100120	Degree: -1 Speed rpm: 600 Rack travel in mm: 13.4013.90
Test nozzle holder assembly : 0 681 343 009	FULL LOAD DELIV. AT FULL LOAD STOP
Opening : 172175	1st version Speed
Test lines : 1 680 750 015	Spread cm3 : 3.50 1000 : (6.00)
Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values	RATED SPEED 1st version Setting point: Speed rpm : 600 Rack travel in mm : 13.6
BEGINNING OF DELIVERY Test pressure, bar: 2527	Testing: 1 1st rack travel in: 11.70 1 Speed rpm : 11451160

2nd rack travel in: 4.00 Speed rpm : 1190...1220 4th rack travel in: 1350 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 6.1 Testing: Speed rpm : 200 Minimum rack trave: 7.50 Speed rpm : 300 Rack travel in mm : 6.00...6.30 Rack travel in mm : 2.00 rpm : 350...390 Speed FUEL DELIVERY CHARACTERISTICS 1st version rpm : 600 Speed Del.quantity cm3/: 115.0...119.0 1000 s: (112.5...121.5) Spread cm3 : 5.00 1000 s: (7.00) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.70 rpm : 1145...1160 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 150.0...170.0 1000 s: (146.0...174.0) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.50...3.60 Prestroke mm : (3.45...3.65) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : RVI 8,8 L Edition : 06.04.88 Replaces : 11.3.88 : ISO-4113 : 0-60-120-180-240-300 Test oil Phasing Tolerance + - 0 Combination no. : 0 401 846 499 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PE6P120A320RS474 : 0 411 826 134 BASIC SETTING EP type number Governor Governor design.: RQV275...1200PA425-3 rpm: 1200 1st speed Governer no. : 0 421 813 441 Rack travel in mm : 11.90...12.00 Customer-spec. information Customer : RVI Del.quantity cm3/: 15.1...15.3 Engine : MIDS062030 100 s: (14.8...15.6) : 168.0 Spread cm3 : 0.5ist version kW : 2400 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 275.0 2nd speed Rack travel in mm : 5.4...5.6 Test oil Del.quantity cm3/: 1.5...2.1 inlet temp. OC : 38...42 100 s: (1.2...2.4) Overflow valve Spread cm3 : 0.8: 1 417 413 025 100 s: (1.2) (B) Setting of injection pump Inlet press., bar : 1.50 with governor Test nozzle holder : 1 688 901 019 GUIDE SLEEVE TRAVEL assembly 1st speed rpm : 275 Opening travel mm : 1.20...1.40 : 207...210 rpm : 400 pressure, bar 2nd speed : 2.90...3.40 travel mm 3rd speed rpm : 900 Orifice plate : 5.80...6.00 travel mm diameter mm : 0,8 4th speed rpm : 1200 travel mm : 7.80...8.00 : 1 680 750 067 Test lines GUIDE SLEEVE POSITION Control-lever position Outside diameter x Wall thickness Degree: -1 Speed rpm : 1250 Rack travel in mm : 15.20...17.80 : 6.00X1.50X1000 x Length mm (A) Injection pump setting values FULL LOAD DELIV. AT FULL LOAD STOP Insp. values in parentheses Set equal delivery quant. per values 1st version rpm : 1200 Speed Aneroid pressure h: 700 BEGINNING OF DELIVERY Del.quantity : 151.0...153.0 1000 : (148.0...156.0) Test pressure, bar: 25...27

Spread cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 62...70 Testing: 1st rack travel in: 10.90 rpm : 1265...1275 Speed 2nd rack travel in: 4.00 Speed rpm : 1380...1410 4th rack travel in: 1500 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 66...74 Testing: rpm : 200 Speed Minimum rack trave: 9.10 : 275 rpm Rack travel in mm : 6.30...6.50 CONSTANT REGULATION rpm : 275...360 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 700 Pressure Rack travel mm : 11.90...12.00 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.70...10.80 2nd pressure hPa : 195 Rack travel in m: 11.60...11.70 3rd pressure hPa : 175 Rack travel in m: 11.10...11.30

Del.quantity cm3/: 139.0...145.0 1000 s: (136.0...148.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 94.0...96.0 1000 s: (91.0...99.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.90 rpm : 1265...1275 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 105.0...125.0 1000 s: (101.0...129.0) LOW IDLE rpm : 275 Speed Rack travel in mm : 6.30...6.50 Del.quantity cm3/: 15.0...21.0 1000 s: (12.0...24.0) Spread cm3 : 8.00 1000 s: (12.00) Remarks: : Start-of-delivery mark at the "INJ" marking

1st version

START CUT-OUT

Speed

Aneroid pressure h: 700 rpm : 750 Speed

FUEL DELIVERY CHARACTERISTICS

1/min : 195 (215)

MO3

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks : DAF 11,6 y6 : 0-60-120-180-240-300 Test sheet Phasing : 11.03.88 Edition Tolerance + - D Replaces : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 401 846 537 rpm: 850 1st speed Injection pump Pump designation : PE6P120A320RS415-1 Rack travel in mm : 12.50...12.60 EP type number : 0 411 826 123 Del.quantity cm3/: 20.6...20.8 Governor Governor design.: RQ250/1000PA417-7 100 s: (20.3...21.1) : 0 421 801 382 Governer no. cm3 : 0.5 Customer-spec. information Spread Customer : DAF 100 s: (0.9) Engine : DKZ 1160 rpm : 250.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 6.6...7.0 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) cm3 : 0.8 Test oil inlet temp. °C : 38...42 Spread 100 s: (1.2) Overflow valve : 1 417 413 025 GUIDE SLEEVE POSITION Control-lever position Degree: -1 Inlet press., bar: 1.50 rpm : 650 Rack travel in mm : 15.20...16.40 Test nozzle holder : 1 688 901 019 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening : 207...210 1st version pressure, bar rpm : 850 Speed Orifice plate Aneroid pressure h: 700 Del.quantity : 206.0...208.0 : 0.8 diameter mm 1000 : (203.0...211.0) cm3 : 5.00 1000 : (9.00) Spread Test lines : 1 680 750 067 RATED SPEED Outside diameter x Wall thickness : 6.00x1.50x1000 1st version x Length mm (A) Injection pump setting values Setting point: Insp. values in parentheses rpm : 650 Speed Rack travel in mm: 15.8 Set equal delivery quant. per values Testing: BEGINNING OF DELIVERY 1st rack travel in: 11.50 Speed rpm : 1035...1050 Test pressure, bar: 25...27 2nd rack travel in: 4.00 : 2.80...2.90 Speed rpm : 1100...1130 Prestroke mm : (2.75...2.95) 4th rack travel in: 1200 Rack travel in mm : 9.00...12.00 rpm : 0.00...1.00 Speed

M04

LOW IDLE 1

Setting point w/out bumper spring

rpm : 250 Rack travel in mm: 6.5

Testing:

Speed rpm: 100 Minimum rack trave: 7.70 rpm : 250 Speed

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00 rpm : 450...490 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 12.70...12.80

2nd speed rpm : 990

Rack travel in m: 12.60...12.80

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 600 hPa : 700 Speed Pressure

Rack travel mm : 12.50...12.60

Measurement

1/min : 600 Speed

1st pressure hPa : -

Rack travel in m: 10.30...10.50 2nd pressure hPa : 340

Rack travel in m: 11.80...11.90 3rd pressure hPa : 280

Rack travel in m: 10.60...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 600 Speed

Del.quantity cm3/: 140.0...142.0

1000 s: (137.0...145.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50

rpm : 1035...1050 Speed

STARTING FUEL DELIVERY

MO5

Speed rpm : 100

Del.quantity cm3/: 305.0...345.0

1000 s: (305.0...345.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 6.40...6.60

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,

the start position must be reached.

APPLICATION 0mn ibus

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks : 0-60-120-180-240-300 Test sheet : DAF 11,6 y7 Phasing Edition : 11.03.88 Tolerance + - 0 : 0.50 (0.75) Replaces Test oil : ISO-4113 BASIC SETTING Combination no. : 0 401 846 538 1st speed rpm: 650 Injection pump Pump designation : PE6P120A320RS415-1 Rack travel in mm : 11.00...11.10 EP type number : 0 411 826 123 Del.quantity cm3/: 16.7...16.9 Governor Governor design.: RQ250/1100PA417-8 100 s: (16.4...17.2) Governer no. : 0 421 801 383 Customer-spec. information Spread cm3 : 0.5_____ Customer : DAF 100 s: (0.9) Engine : DKV 1160 rpm : 250.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm : 6.6...7.0 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) Test oil inlet temp. °C cm3 : 0.8 : 38...42 Spread 100 s: (1.2) Overflow valve : 1 417 413 025 GUIDE SLEEVE POSITION Control-lever position Inlet press., bar: 1.50 Degree: -1 rpm : 700 Test nozzle holder Rack travel in mm : 15.20...16.40 assembly : 1 688 901 019 FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 207...210 1st version Speed rpm : 650 Aneroid pressure h: 700 Orifice plate : 167.0...169.0 diameter mm : 0,8 Del.quantity 1000 : (164.0...172.0) cm3 : 5.00 Spread 1000 : (9.00) Test lines : 1 680 750 067 Outside diameter RATED SPEED x Wall thickness : 6.00X1.50X1000 1st version x Length mm (A) Injection pump setting values Setting point: Insp. values in parentheses rpm : 700 Speed Set equal delivery quant. Rack travel in mm: 15.8 per values Testing: BEGINNING OF DELIVERY 1st rack travel in: 8.90 rpm : 1130...1145 Test pressure, bar: 25...27 Speed 2nd rack travel in: 4.00 rpm : 1180...1210 Prestroke mm : 2.80...2.90 Speed : (2.75...2.95) 4th rack travel in: 1300 Rack travel in mm : 9.00...12.00 rpm : 0.00...1.00 Speed

MO6

LOW IDLE 1

Setting point W/out bumper spring

rpm : 250 Rack travel in mm: 6.3

Testing:

Speed rpm : 100 Minimum rack trave: 7.20 rpm : 250 Speed

Rack travel in mm : 6.20...6.40 Rack travel in mm : 2.00

Speed

rpm : 440...480

TORQUE CONTROL

Dimension a mm : 0.77

Torque control curve - 1st version

1st speed rpm : 650

Rack travel in m: 11.20...11.30

2nd speed rpm : 1090

Rack travel in m: 9.90...10.10

3rd speed rpm : 825

Rack travel in m: 10.70...10.90

4th speed rpm : 900

Rack travel in m: 10.30...10.60

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm hPa : 700 Pressure

: 11.00...11.10 Rack travel mm

Measurement

Speed 1/min : 600

1st pressure hPa : -

Rack travel in m: 9.80...10.00

2nd pressure hPa : 290

Rack travel in m: 10.70...10.90

3rd pressure hPa : 260

Rack travel in m: 10.20...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

rpm : 1090 Speed

Del.quantity cm3/: 153.0...157.0

1000 s: (150.0...160.0)

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/ : 135.0...137.0

1000 s: (132.0...140.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.90

Speed rpm : 1130...1145

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 320.0...360.0 1000 s: (320.0...360.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 6.20...6.40

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION 0mn ibus

Note remarks

Test sheet : ENA 10,1 a : 25.03.88 Edition

Replaces

Test oil

: ISO-4113

Combination no. : 0 401 846 544

Injection pump

Pump designation : PE6P100A820LS130 EP type number : 0 411 806 179

Governor

Governor design. : RQ250/1050PA627-1

Governer no.

: 0 421 801 407

Customer-spec. information : ENASA Customer

: 95 A1 BZ,

TEST BENCH REQUIREMENTS

Engine

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4

firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 1030 1st speed

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 11.8...12.0

100 s: (11.6...12.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm: 250.0 Rack travel in mm: 7.9...8.1

Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 600 Speed

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1030 Speed

: 118.0...120.0 Del.quantity

1000 : (116.0...122.0)

cm3 : 3.50Spread

1000 : (6.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm

Rack travel in mm: 16.0

Testing:

1st rack travel in: 11.00

rpm : 1095...1110 Speed

2nd rack travel in: 4.00

rpm : 1140...1170 Speed

4th rack travel in: 1250

: 0.00...1.00 Speed rpm

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250 Rack travel in mm : 6.0

Testing:

Speed rpm: 100
Minimum rack trave: 7.50
Speed rpm: 250
Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00
Speed rpm: 350...390

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 250 Rack travel in mm : 5.90...6.10

Remarks:

APPLICATION Special-purpose vehicle BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : ENA 10,1 b Test sheet : 25.03.88 Edition Replaces : 15.1.88 Test oil : ISO-4113 Combination no. : 0 401 846 546 Injection pump Pump designation : PE6P100A820LS130 EP type number : 0 411 806 179 Governor

Governor design. : RQV250...1050PA807-1

: 0 421 813 665 Governer no.

Customer-spec. information : ENASA Customer

: 95 A1 BX Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm ; 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1030 1st speed

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 11.9...12.1

100 s: (11.7...12.3)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 250.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4) cm3 : 0.3

Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed

: 0.90...1.30 travel mm

rpm : 350 2nd speed

travel mm : 1.60...2.20

rpm : 700 3rd speed

: 4.40...5.00 travel mm

4th speed rpm : 1095

: 7.90...8.10 travel mm

rpm : 1185 5th speed

: 8.80...9.20 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1030 Speed

: 119.0...121.0 Del.quantity 1000 : (117.0...123.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 41...49 Testing: 1st rack travel in: 11.00 Speed rpm : 1090...1100 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1300 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...18 Testing: Speed rpm : 100 Minimum rack trave: 7.50 Speed rpm : 250 Rack travel in mm : 5.90...6.10 CONSTANT REGULATION rpm : 250...400 Speed START CUT-OUT Speed 1/min: 170 (150) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.00 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 pel.quantity cm3/ : 260.0...280.0 1000 s: (256.0...284.0) Rack travel in mm : 19.50...21.00 LOW IDLE Speed rpm : 250 Rack travel in mm : 5.90...6.10 Remarks: **APPLICATION**

Special-purpose vehicle

Note remarks

: ENA 10,1 c Test sheet : 25.03.88 Edition Replaces : 12.2.88 Test oil : ISO-4113

Combination no. : 0 401 846 547

Injection pump

Pump designation : PE6P110A820LS513 EP type number : 0 411 816 174

Governor

Governor design. : RQV250...1000PA811

: 0 421 813 556 Governer no.

Customer-spec. information Customer : ENASA

Engine : 95 R1 AX

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.20...3.30 Prestroke mm : (3.15...3.25)

Rack travel in mm : 9.00...12.00

: 1- 5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 17.6...17.8

100 s: (17.3...18.1)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 250.0 2nd speed Rack travel in mm: 6.6...6.8 Del.quantity cm3/: 1.8...2.3

100 s: (1.5...2.5) cm3 : 0.4

Spread 100 s: (0.7)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.00...1.40

2nd speed rpm : 400

travel mm : 2.20...2.80

3rd speed rpm : 650 travel mm : 4.50

: 4.50...5.10

4th speed rpm : 1050 travel mm : 8.50. : 8.50...8.70

5th speed rpm : 1140 travel mm : 9.70...10.10

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1040 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed Aneroid pressure h: 900

Del.quantity : 176.0...178.0 1000 : (173.0...181.0)

cm3 : 4.00 Spread

1000 : (7.50)

RATED SPEED

1st version Control lever position degrees: 41...49 Testing:

1st rack travel in: 11.80 rpm : 1040...1050 Speed

2nd rack travel in: 4.00

Speed rpm : 1130...1160 4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever position degrees: 9...17

Testing:

Speed rpm : 100 Minimum rack trave: 8.20 rpm : 250

Rack travel in mm : 6.60...6.80

CONSTANT REGULATION

rpm : 250...380 Speed

TORQUE CONTROL Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 900 Rack travel in m: 12.80...12.90

2nd speed rpm : 700 Rack travel in m: 13.30...13.50

3rd speed rpm : 850 Rack travel in m: 13.00...13.20

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rom hPa : 900 Pressure

Rack travel mm : 13.00...13.20

Measurement

1/min : 500 Speed

1st pressure hPa : -Rack travel in m: 10.80...11.20

2nd pressure hPa : 440

Rack travel in m: 12.50...12.60 3rd pressure hPa : 290

Rack travel in m: 11.50...11.70

START CUT-OUT

1/min : 170 (150) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm : 600 Speed

Del.quantity cm3/: 178.0...182.0 1000 s: (175.0...185.0)

Aneroid pressure h: -

Speed rpm: 500
Del.quantity cm3/: 132.0...134.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.80

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 150.0...170.0 1000 s: (146.0...174.0)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION Special-purpose vehicle BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : ENA 10,1 d Test sheet : 25.03.88 Edition : 12.2.88 Replaces : ISO-4113 Test oil Combination no. : 0 401 846 549 Injection pump Pump designation: PE6P100A820LS503 EP type number : 0 411 806 197 Governor Governor design. : RQV250...1000PA811 : 0 421 813 556 Governer no. Customer-spec. information Customer : ENASA Engine : 95 T1 AX,BX TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar : 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6,00x1,50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____ BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 2.80...2.90 Prestroke mm

: (2.75...2.95) Rack travel in mm : 9.00...12.00 : 1-5- 3- 6- 2- 4 firing order

Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 980 1st speed Rack travel in mm : 14.20...14.30 Del.quantity cm3/: 16.5...16.7 100 s: (16.3...16.9) : 0.3 Spread cm3 100 s: (0.6) 2nd speed rpm : 250.0 Rack travel in mm : 7.7...7.9 Del.quantity cm3/ : 1.8...2.2 100 s: (1.5...2.4) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 250 : 1.00...1.40 travel mm 2nd speed rpm : 400 : 2.20...2.80 travel mm 3rd speed rpm : 650 : 4.50...5.10 travel mm 4th speed rpm : 1050 : 8.50...8.70 travel mm 5th speed rpm : 1140 : 9.70...10.10 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1040 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 980 Speed Aneroid pressure h: 900 Del.quantity : 165.0...167.0 1000 : (163.0...169.0) cm3 : 3.50 1000 : (6.00) Spread

RATED SPEED

1st version Control lever

position degrees: 42...50

Testing:

1st rack travel in: 13.20

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

rpm : 1140...1170 Speed

4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 9...17

Testing:

Speed : 100 Lbw Minimum rack trave: 7.50

rpm : 250 Speed

Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

rpm : 250...350 Speed

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 980

Rack travel in m: 14.20...14.30

2nd speed rpm : 700

Rack travel in m: 14.70...14.90

3rd speed rpm : 850

Rack travel in m: 14.40...14.60

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rom hPa : 900 Pressure

: 14.50...14.70 Rack travel mm

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 12.90...13.30

2nd pressure hPa : 400

Rack travel in m: 14.10...14.20 3rd pressure hPa : 300

Rack travel in m: 13.40...13.60

START CUT-OUT

1/min : 170 (190) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 700 Del.quantity cm3/ : 170.0...174.0

1000 s: (168.0...176.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 130.0...132.0

1000 s: (127.0...135.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.20

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 180.0...200.0

1000 s: (176.0...204.0)

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 5.90...6.10

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION

Special-purpose vehicle

Note remarks

Test sheet : ENA 10,1 e Edition : 25.03.88 : 11.3.88 Replaces Test oil : ISO-4113

Combination no. : 0 401 846 552

Injection pump

Pump designation : PE6P100A820LS503-1

EP type number : 0 411 806 198

Governor

Governor design. : RQ250/1000PA352-1 : 0 421 801 412 Governer no.

Customer-spec. information Customer : ENASA

: 95 T1 AZ,CZ Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.85...2.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 980 1st speed

Rack travel in mm : 14.20...14.30

Del.quantity cm3/: 16.5...16.7

100 s: (16.3...16.9)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 250.0 Rack travel in mm : 7.8...8.0

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 Speed rpm : 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 980 Speed Aneroid pressure h: 900

Del.quantity : 165.0...169.0)

Societa cm3 : 3.50

(4.00)

1000 : (6.00)

RATED SPEED

1st version

Setting point:

rpm : 600 Speed Rack travel in mm: 16.0

Testing:

1st rack travel in: 13.20

rpm : 1045...1060 Speed

2nd rack travel in: 4.00

rpm : 1100...1130

Speed

4th rack travel in: 1200

rpm : 0.00...1.00 Speed

LOW IDLE 1 Setting point w/out bumper spring : 250 rpm

Rack travel in mm: 6.0

Testing:

rpm : 100 Speed Minimum rack trave: 7.50 rpm : 250 Speed

Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00

rpm : 350...390 Speed

TORQUE CONTROL

Dimension a mm : 0.40

Torque control curve - 1st version 1st speed rpm : 1000

Rack travel in m: 14.20...14.30 and speed rpm : 700 Rack travel in m: 14.70...14.90 2nd speed rpm

3rd speed rpm : 850

Rack travel in m: 14.40...14.60

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 900 Pressure

Rack travel mm : 14,60...14.90

Measurement

1/min : 500 Speed

1st pressure hPa : -Rack travel in m: 12.90...13.30

2nd pressure hPa : 400

Rack travel in m: 14.10...14.20

3rd pressure hPa : 300 Rack travel in m: 13.40...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm_ : 700 Speed

Del.quantity cm3/: 170.0...174.0

1000 s: (168.0...176.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 130.0...132.0

1000 s: (127.0...135.0)

BREAKAWAY

1st version

M17

1mm rack travel less than

full load rack tr: 13.20

Speed rpm : 1045...1060

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 150.0...170.0 1000 s: (146.0...174.0)

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 5.90...6.10

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION

Special-purpose vehicle

: 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS firing order Note remarks Test sheet : DAF 11,6 y8 Phasing : 0-60-120-180-240-300 Edition : 06.04.88 Tolerance + - 0 Replaces : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 401 846 553 1st speed rpm: 850 Injection pump Pump designation : PE6P120A320RS415-1 Rack travel in mm : 11.60...11.70 EP type number : 0 411 826 123 Del.quantity cm3/: 18.7...18.9 Governor Governor design. : RQ250/1100PA417-9 : 0 421 801 431 100 s: (18.4...19.2) Governer no. Customer-spec. information Spread cm3 : 0.5Customer : DAF 100 s: (0.9) Engine : DKX ATi rpm : 250.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) Test oil inlet temp. OC : 38...42 cm3 : 0.8Spread 100 s: (1.2) Overflow valve : 1 417 413 025 GUIDE SLEEVE POSITION Control-lever position Degree: -1 Inlet press., bar: 1.50 Speed rpm : 700
Rack travel in mm : 15.20...16.40 Test nozzle holder : 1 688 901 019 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 207...210 1st version rpm : 850 Speed Aneroid pressure h: 700 Orifice plate Del.quantity : 187.0...189.0 1000 : (184.0...192.0) Spread cm3 : 5.00 diameter mm : 0,8 Test lines : 1 680 750 067 1000 : (9,00) RATED SPEED Outside diameter x Wall thickness : 6.00X1.50X1000 1st version x Length mm Setting point: (A) Injection pump setting values Insp. values in parentheses Speed rpm : 700 Set equal delivery quant. Rack travel in mm: 15.8 per values ____ Testing: BEGINNING OF DELIVERY 1st rack travel in: 10.60 rpm : 1125...1140 Test pressure, bar: 25...27 Speed 2nd rack travel in: 4.00

rpm : 1190...1220

rom : 0.00...1.00

Speed

Speed

4th rack travel in: 1300

Prestroke mm

: 2.80...2.90

Rack travel in mm : 9.00...12.00

: (2.75...2.95)

LOW IDLE 1

Setting point w/out bumper spring

rpm : 250 Rack travel in mm: 6.5

Testing:

Speed rpm : 100 Minimum rack trave: 7.40 rpm : 250 Speed

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

: 450...490 Speed rpm

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 11.80...11.90

2nd speed rpm : 1080

Rack travel in m: 11.70...11.90

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 600 Speed hPa : 700 Pressure

Rack travel mm : 11.60...11.70

Measurement

1/min : 600 Speed

1st pressure hPa : -

Rack travel in m: 10.30...10.50

2nd pressure hPa : 300

Rack travel in m: 11.30...11.40 3rd pressure hPa : 250

Rack travel in m: 10.60...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 600 Speed

Del.quantity cm3/: 140.0...142.0 1000 s: (137.0...145.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60

rpm : 1125...1140 Speed

STARTING FUEL DELIVERY

M19

rpm : 100 Speed

Del.quantity cm3/: 305.0...345.0

1000 s: (305.0...345.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 6.40...6.60

Remarks:

APPLICATION

0mnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.60...2.70 Prestroke mm : (2.55...2.75) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : VOL 12,0 i Edition : 07.03.88 : 24.7.87 Replaces : ISO-4113 : 0-60-120-180-240-300 Test oil Phasing Tolerance + - 0 : 0.50 (0.75) Combination no. : 0 401 846 773 Injection pump Time to cyl. no. : 1 Pump designation : PE6P120A320RS3116 : 0 411 826 727 BASIC SETTING EP type number Governor Governor design. : RQV250...1025PA657 1st speed rpm : 700 Governer no. : 0 421 813 368 Rack travel in mm : 11.40...11.50 Customer-spec. information Customer : VOLVO Del.quantity cm3/: 19.6...19.8 Engine : TD120G 100 s: (19.3...20.1) : 242.7 cm3 : 0.5 1st version kW Spread : 2050 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 250.0 2nd speed Rack travel in mm: 5.5...5.7 Test oil Del.quantity cm3/: 1.8...2.3 inlet temp. OC : 38...42 100 s: (1.5...2.5) cm3 : 0.5Overflow valve Spread : 1 417 413 025 100 s: (0.7) (B) Setting of injection pump Inlet press., bar : 1.50 with governor Test nozzle holder GUIDE SLEEVE TRAVEL : 1 688 901 019 assembly rpm : 250 1st speed Opening travel mm : 1.10...1.30 2nd speed rpm : 500 pressure, bar : 207...210 travel mm : 4.10...4.90 3rd speed rpm : 700 Orifice plate : 6.30...6.70 diameter mm : 0,8 travel mm 4th speed rpm : 900 : 6.30...6.70 travel mm 5th speed rpm : 1025 : 1 680 750 067 Test lines : 7.30...7.80 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00X1.50X1000 Control-lever position x Length mm Degree: -1 rpm : 1080 (A) Injection pump setting values Speed Insp. values in parentheses Rack travel in mm : 15.20...17.80 Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values BEGINNING OF DELIVERY 1st version Speed rpm : 700 Test pressure, bar: 25...27

Aneroid pressure h: 700

Del.quantity : 190.5...201.5)

: 5.00 cm3

Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 59...67

Testing:

1st račk travel in: 10.40

rpm : 1085...1095 Speed 2nd rack travel in: 4.00

Speed rpm : 1145...1175 4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 6...14

Testing:

Speed rpm : 100 Minimum rack trave: 7.00

Speed rpm : 250 Rack travel in mm : 5.50...5.70

Rack travel in mm : 2.00 rpm : 350...410 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 700 Pressure

: 11.40...11.50 Rack travel mm

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.00...9.10

2nd pressure hPa : 450

Rack travel in m: 11.20...11.30

3rd pressure hPa : 170

Rack travel in m: 9,30...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm_ : 700 Speed

Del.quantity cm3/: 151.0...153.0 1000 s: (148.0...156.0) **BREAKAWAY**

1st version

1mm rack travel less than

full load rack tr: 10.40

rpm : 1085...1095 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 240.0...270.0

1000 s: (236.0...274.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm

Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 18.0...23.0 1000 s: (15.5...25.5)

cm3 : 5.00 Spread

1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.

Permissible alteration from 2.20...2.90

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 11.0 e 3 : 19.4.88 Test sheet Edition Replaces : 4.85 : ISO-4113 Test oil Combination no. : 0 401 846 801 Injection pump Pump designation : PE6P120A320LS3810-10 Governor Governor design. : RQV350...1150PA720 Customer-spec. information Customer : DAIMLER-BENZ : OM 421 A Engine 1st version kW : 184.0 : 2300 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. OC : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness

: 6,00X1,50X1000 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 4.00...4.10 Prestroke mm : (3.95...44.15)

Rack travel in mm : 9.00...12.00 Firing order : 1-6-3-5-2-4 Phasing : 0-75-120-195-240-315 Tolerance + - 0 : 0.50(0.75) BASIC SETTING rpm: 1150 1st speed Rack travel in mm : 11.00...11.10 Del.quantity cm3/: 16.3...16.5 100 s: (16.0...16.8) Spread cm3 : 0.5100 s: (0.9) rpm : 350 2nd speed Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 1.4...2.0 100 s: (-) cm3 : 0.8Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 : 0.60...0.90 travel mm 2nd speed rpm : 580 travel mm : 3.60...3.70 3rd speed rpm : 870 : 5.20...5.30 travel mm 4th speed rpm : 1150 travel mm : 7.60 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1250 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1150 Speed Aneroid pressure h: 700 Del.quantity : 163.0...165.0 1000 : (160.0...168.0) cm3 : 5.0 Spread 1000 : (9.0)

RATED SPEED

1st version Control lever

position degrees: 58...66

Testing:

1st rack travel in: 10.00 rpm : 1175...1185 Speed

2nd rack travel in: 4.00

rpm : 1280...1290 Speed 4th rack travel in: 1360

rpm : 0.00...1.50 Speed

LOW IDLE 1 Control lever

position degrees: 7...15

Testing:

Speed : 100 rpm Minimum rack trave: 6.70 : 350 rpm Speed

Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

rpm : 350...500 Speed

TORQUE CONTROL

: 0.30 Dimension a mm

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 11.00...11.10

2nd speed rpm : 850

Rack travel in m: 11.30...11.50 3rd speed rpm : 950

Rack travel in m: 11.10...11.20

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 700 Pressure

Rack travel mm : 11.30...11.50

Measurement

1/min : 500 Speed

1st pressure hPa ; -

Rack travel in m: 10.80...11.00

2nd pressure hPa : 450

Rack travel in m: 11.10...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 1150 Speed

Del.quantity cm3/: 128.0...131.0 *

1000 s: (125.0...134.0)

cm3 : 8.0 Spread 1000 s: (12.0)

Aneroid pressure h: 700

Speed rpm : 600 Del.quantity cm3/ : 170.0...176.0

1000 s: (167.0...179.0)

Spread cm3 : 8.01000 s: (12.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 146.0...148.0 1000 s: (143.0...151.0)

cm3 : 8.0 Spread 1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

rpm : 1175...1185 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

* = Set at reduced-delivery stop.

: 3.70...3.80 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.65...3.85) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order : DAF 11,7 d3 Test sheet : 11.12.87 Edition : 9.10.87 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Tolerance + - 0 Combination no. : 0 401 846 842 : 0.50 (0.75) BASIC SETTING Injection pump Pump designation : PE6P120A320RS3183-1Z EP type number : 0 411 826 760 rpm: 850 1st speed Governor Governor design. : RQ250/1000PA832-1 Rack travel in mm : 11.30...11.40 Governer no. : 0 421 801 387 Del.quantity cm3/: 18.1...18.3 Customer-spec. information 100 s: (17.8...18.6) Customer : DAF : WS 225 Spread cm3 : 0.5Engine : 225.0 100 s: (0.9) 1st version kW : 2000 Rated speed 2nd speed rpm : 250.0 Rack travel in mm: 6.6...7.0 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) Test oil inlet temp. OC : 38...42 cm3 : 0.8Spread 100 s: (1.2) Overflow valve : 1 417 413 025 GUIDE SLEEVE POSITION Control-lever position Inlet press., bar: 1.50 Degree: -1 rpm : 550 Speed Rack travel in mm: 15.20...16.40 Test nozzle holder : 1 688 901 019 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening : 207...210 1st version pressure, bar rpm : 850 Speed Aneroid pressure h: 1000 Orifice plate diameter mm : 0,8 Del quantity : 181.0...183.0 1000 : (178.0...186.0) cm3 : 5.00Spread Test lines : 1 680 750 067 1000 : (9.00) RATED SPEED Outside diameter x Wall thickness : 6.00x1.50x1000 1st version x Length mm (A) Injection pump setting values Setting point: Speed rpm : 550 Insp. values in parentheses Rack travel in mm: 15.8 Set equal delivery quant. per values Testing: BEGINNING OF DELIVERY 1st rack travel in: 10.30 rpm : 1035...1050

Speed

2nd rack travel in: 4.00

Test pressure, bar: 25...27

rpm : 1120...1150 Speed 4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 250° Speed Rack travel in mm: 6.8

Testing:

rpm : 100 Speed Minimum rack trave: 8.30 : 250 Speed Cbm Rack travel in mm : 6.60...7.00

Rack travel in mm : 2.00

rpm : 350...390 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 11.50...11.60

2nd speed rpm : 1000

Rack travel in m: 11.40...11.60

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 600 Speed hPa : 1000 Pressure

Rack travel mm : 11.30...11.40

Measurement

Speed 1/min : 600

1st pressure hPa : ~

Rack travel in m: 10.10...10.30

2nd pressure hPa : 330

Rack travel in m: 11.00...11.10

3rd pressure hPa : 260

Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 600 Speed

Del.quantity cm3/: 144.0...146.0 1000 s: (141.0...149.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30

M25

rpm : 1035...1050 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 260.0...300.0

1000 s: (256.0...304.0)

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 6.60...7.00 Del.quantity cm3/: 14.0...20.0

1000 s: (11.0...23.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

APPLICATION

0mnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : ENA 11,9 d Test sheet : 25.03.88 : 7.3.88 Edition Replaces : ISO-4113 Test oil Combination no. : 0 401 846 862 Injection pump Pump designation : PE6P110A320RS3201 EP type number : 0 411 816 753 Governor Governor design. : RQ250/1050PA218-1 Governer no. T : 0 421 801 406 Customer-spec. information : ENASA Customer Engine : 96 A4 AZ TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.20...3.30 Prestroke mm : (3,15,...3,25)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1030 1st speed

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 12.5...12.7

100 s: (12.2...13.0)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 250.0 2nd speed Rack travel in mm : 7.9...8.1 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6) cm3 : 0.4 100 s: (0.7) Spread

GUIDE SLEEVE POSITION Control-lever position Degree: -1

rpm : 600 Speed

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1030 Speed

Del.quantity : 125.0...130.0)

: 4.00 cm3 Spread 1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm: 16.0

Testing:

1st rack travel in: 11.00

rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1140...1170

Speed 4th rack travel in: 1250

: 0.00...1.00

Speed rom

LOW IDLE 1

Setting point w/out bumper spring Speed rpm : 250 Rack travel in mm : 6.0

Testing:

Speed rpm : 100 Minimum rack trave: 7.50 Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00 rpm : 290...330 Speed

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 143.0...163.0 1000 s: (139.0...167.0)

LOW IDLE

Speed rpm : 250 Rack travel in mm : 5.90...6.10

Remarks:

APPLICATION

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.70...3.80 Prestroke mm : (3.65...3.85) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks : DAF 11,7 d8 Test sheet : 07.03.88 Edition Replaces : ISO-4113 : 0-60-120-180-240-300 Test oil Phasing Combination no. : 0 401 846 874 Tolerance + - 0 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PE6P120A320RS3183 EP type number : 0 411 826 754 rpm: 850 1st speed Governor Governor design. : RQ250/1000PA832 Rack travel in mm : 12.80...12.90 Governer no. : 0 421 801 368 Del.quantity cm3/: 21.3...21.5 Customer-spec. information 100 s: (21.0...21.8) Customer : DAF cm3 : 0.5 : WS 259 Spread Engine : 259.0 100 s: (0.9) 1st version kW : 2000 Rated speed rpm : 250.0 2nd speed Rack travel in mm : 6.6...7.0 Del.quantity cm3/ : 1.4...2.0 TEST BENCH REQUIREMENTS 100 s: (1.1...2.3) Test oil inlet temp. °C : 38...42 Spread cm3 : 0.8 100 s: (1.2) Overflow valve : 1 417 413 025 GUIDE SLEEVE POSITION Control-lever position Inlet press., bar: 1.50 Degree: -1 rpm : 550 Speed Test nozzle holder Rack travel in mm : 15.20...16.40 : 1 688 901 019 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening : 207...210 pressure, bar 1st version rpm : 850 Speed Aneroid pressure h: 1000 Orifice plate : 213.0...215.0 diameter mm : 0,8 Del.quantity 1000 : (210.0...218.0) cm3 : 5.00 Spread 1000 : (9.00) Test lines : 1 680 750 067 Outside diameter RATED SPEED x Wall thickness x Length mm : 6.00X1.50X1000 1st version Setting point: (A) Injection pump setting values Speed rpm : 550 Insp. values in parentheses Rack travel in mm: 15.8 Set equal delivery quant. per values ____ Testing: BEGINNING OF DELIVERY 1st rack travel in: 11.80 rpm : 1035...1050 Test pressure, bar: 25...27 Speed

2nd rack travel in: 4.00

rpm : 1125...1155 Speed 4th rack travel in: 1250 rpm : 0.00...1.00 Speed LOW IDLE 1 Setting point w/out bumper spring : 250 rpm Rack travel in mm: 6.8 Testing: Speed rpm : 100 Minimum rack trave: 8.30 : 250 Speed rpm Rack travel in mm : 6.60...7.00 Rack travel in mm : 2.00 : 350...390 Speed rom TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 850 Rack travel in m: 13.10...13.20 2nd speed rpm : 1000 Rack travel in m: 13.00...13.20 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600 hPa : 1000 Pressure Rack travel mm : 12.80...12.90 Measurement 1/min : 600 Speed 1st pressure hPa : -Rack travel in m: 10.20...10.40 2nd pressure hPa : 460 Rack travel in m: 12.20...12.30 3rd pressure hPa : 250 Rack travel in m: 10.80...11.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: rpm : 600 Speed Del.quantity cm3/: 145.0...147.0 1000 s: (142.0...150.0) BREAKAWAY 1st version 1mm rack travel less than

Speed rpm : 1035...1050

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 260.0...300.0 1000 s: (256.0...304.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.60...7.00
Del.quantity cm3/ : 14.0...20.0
1000 s: (11.0...23.0)

Spread cm3 : 8.00 1000 s: (12.00)

Remarks:

NO1

full load rack tr: 11.80

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.70...3.80 Prestroke mm : (3.65...3.85) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : DAF 11,7 e8 : 07.03.88 Edition Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0 401 846 875 : 0.50 (0.75) Combination no. BASIC SETTING Injection pump Pump designation : PE6P120A320RS3183Y EP type number : 0 411 826 778 rpm: 850 1st speed Governor Governor design. : RQV250...1000PA851 Rack travel in mm : 13.40...13.50 : 0 421 813 604 Governer no. Del.quantity cm3/: 22.8...23.0 Customer-spec. information 100 s: (22.5...23.3) Customer : DAF cm3 : 0.5: WS 282 Spread Engine 1st version kW : 282.0 100 s: (0.9) : 2000 Rated speed 2nd speed rpm : 250.0 Rack travel in mm : 6.6...7.0 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) Test oil inlet temp. OC : 38...42 cm3 : 0.8Spread 100 s: (1.2) Overflow valve : 1 417 413 025 (B) Setting of injection pump with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL rpm : 250 Test nozzle holder 1st speed : 1 688 901 019 : 1.40...1.60 assembly travel mm rpm : 400 2nd speed : 3.20...3.60 travel mm Opening rpm : 800 pressure, bar : 207...210 3rd speed : 5.80...6.20 travel mm 4th speed rpm : 1000 Orifice plate : 7.90...8.10 travel mm diameter mm : 0,8 GUIDE SLEEVE POSITION Test lines : 1 680 750 067 Control-lever position Degree: -1 rpm : 1025 Outside diameter Speed Rack travel in mm : 15.20...17.80 x Wall thickness : 6.00X1.50X1000 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version rpm : 850 Set equal delivery quant. Speed Aneroid pressure h: 1000 per values ____ : 228.0...230.0 Del.quantity 1000 : (225.0...233.0) BEGINNING OF DELIVERY cm3 : 5.00 Test pressure, bar: 25...27 Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 51...59

Testing:

1st rack travel in: 12.40

Speed rpm : 1040...1050

2nd rack travel in: 4.00

Speed rpm : 1130...1160

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 16...24

Testing:

Speed rpm : 100 Minimum rack trave: 8.30

Speed rpm : 250

Rack travel in mm : 6.60...7.00

CONSTANT REGULATION

rpm : 275...385 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 600 Speed hPa : 1000 Pressure

Rack travel mm : 13.40...13.50

Measurement

1/min : 600 Speed

1st pressure hPa : -

Rack travel in m: 10.20...10.40

2nd pressure hPa : 520 Rack travel in m: 12.60...12.70

3rd pressure hPa : 280

Rack travel in m: 11.00...11.20

START CUT-OUT

1/min : 200 (220) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/ : 145.0...147.0 1000 s: (142.0...150.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 260.0...300.0

1000 s: (256.0...304.0)

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 6.60...7.00 Del.quantity cm3/: 14.0...20.0 1000 s: (11.0...23.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

NO3

: 3.70...3.80 : (3.65...3.85) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 9.00...12.00 Note remarks Firing order : 1-5-3-6-2-4 Test sheet : DAF 11,9 e9 Edition : 07.03.88 Replaces : ISO-4113 : 0-60-120-180-240-300 Test oil Phasing Tolerance + - 0 Combination no. : 0 401 846 876 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PE6P12OA32ORS3183Z rpm: 850 EP type number : 0 411 826 777 1st speed Governor Governor design. : RQV250...1000PA851-1 Rack travel in mm : 12.10...12.20 Governer no. : 0 421 813 605 Del.quantity cm3/: 19.9...20.1 Customer-spec. information 100 s: (19.6...20.4) Customer : DAF Engine : WS 225 cm3 : 0.5Spread : 225.0 100 s: (0.9) 1st version kW : 2000 Rated speed rpm : 250.0 2nd speed Rack travel in mm: 6.6...7.0 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) cm3 : 0.8 Test oil inlet temp. °C : 38...42 Spread 100 s: (1.2) Overflow valve : 1 417 413 025 (B) Setting of injection pump with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 250 : 1.40...1.60 assembly : 1 688 901 019 travel mm rpm : 400 2nd speed : 3.20...3.60 Opening travel mm rpm : 800 pressure, bar : 207...210 3rd speed : 5.80...6.20 travel mm rpm : 1000 Orifice plate 4th speed : 7.90...8.10 diameter mm : 0,8 travel mm GUIDE SLEEVE POSITION Control-lever position Test lines : 1 680 750 067 Degree: -1 rpm : 1025 Outside diameter Speed x Wall thickness Rack travel in mm : 15.20...17.80 : 6.00x1.50x1000 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 850 Speed Aneroid pressure h: 1000 per values : 199.0...201.0 Del.quantity 1000 : (196.0...204.0) BEGINNING OF DELIVERY : 5.00 Test pressure, bar: 25...27 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever position degrees: 50...58

Testing:

1st rack travel in: 11.10

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

Speed rpm : 1120...1150

4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 16...24

Testing:

Speed rpm : 100

Minimum rack trave: 8.30

rpm : 250 Speed

Rack travel in mm : 6.60...7.00

CONSTANT REGULATION

rpm : 275...385 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm hPa : 1000 Pressure

Rack travel mm : 12.10...12.20

Measurement

1/min : 600 Speed

1st pressure hPa : -

Rack travel in m: 10.30...10.50 2nd pressure hPa : 370

Rack travel in m: 11.70...11.80

3rd pressure hPa : 240

Rack travel in m: 10.80...11.00

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 600 Speed

Del.quantity cm3/: 147.0...149.0

1000 s: (144.0...152.0)

N₀5

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 260.0...300.0 1000 s: (256.0...304.0)

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 6.60...7.00

Del.quantity cm3/: 14.0...20.0

1000 s: (11.0...23.0) Spread

cm3 : 8.00 1000 s: (12.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS		Prestroke mm : 3.703.80 : (3.653.85)	
Note remarks		Rack travel in mm : 9.0012.00 Firing order : 1- 5- 3- 6- 2	2- 4
Test sheet Edition Replaces Test oil	: DAF 11.7 e7 : 07.03.88		
Test oil	ISO-4113	Phasing : 0-60-120-180-240)-300
Combination no.	: 0 401 846 877	Tolerance + - 0 : 0.50 (0.75)	
Injection pump	. DE 404 204 7200 C 74 P 7	BASIC SETTING	
EP type number Governor	: PE6P120A320RS3183 : O 411 826 754	1st speed rpm: 850	
	: RQV2501000PA851-2 : 0 421 813 606	Rack travel in mm : 12.8012.90	
Customer-spec. information		Del.quantity cm3/: 21.321.5	
Customer	: DAF	100 s: (21.021.8)	
Engine	: WS 259	Spread cm3 : 0.5	سنين وي
1st version kW Rated speed	: 259.0 : 2000	100 s: (0.9)	
TEST BENCH REQUIRE	1	2nd speed rpm : 250.0 Rack travel in mm : 6.67.0	
Test oil inlet temp. °C	: 3842	Del.quantity cm3/: 1.42.0 100 s: (1.12.3) Spread cm3 : 0.8 100 s: (1.2)	
Overflow valve	: 1 417 413 025	(B) Setting of injection pump	
Inlet press., bar	: 1.50	with governor	
Test nozzle holder assembly		GUIDE SLEEVE TRAVEL 1st speed rpm : 250 travel mm : 1.401.60 2nd speed rpm : 400	
Opening pressure, bar	: 207210	travel mm : 3.203.60 3rd speed rpm : 800 travel mm : 5.806.20	
Orifice plate diameter mm	: 0,8	4th speed rpm : 1000 travel mm : 7.908.10	
Test lines	: 1 680 750 067	GUIDE SLEEVE POSITION Control-lever position Degree: -1	
Outside diameter x Wall thickness x Length mm	: 6.00x1.50x1000	Speed rpm : 1025 Rack travel in mm : 15.2017.80	
(A) Injection pump Insp. values i Set equal deli per values	n parentheses very quant.	full LOAD DELIV. AT Full LOAD STOP 1st version Speed rpm : 850 Aneroid pressure h: 1000 Del.quantity : 213.0215.0	
BEGINNING OF DELIV Test pressure, bar		1000 : (210.0218.0) Spread cm3 : 5.00 1000 : (9.00)	

RATED SPEED

1st version Control lever

position degrees: 51...59

Testing:

1st rack travel in: 11.80

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

rpm : 1120...1150 Speed

4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 16...24

Testing:

rpm : 100 Speed Minimum rack trave: 8.30

rpm : 250 Speed

Rack travel in mm : 6.60...7.00

CONSTANT REGULATION

rpm : 275...385 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm hPa : 1000 Pressure

Rack travel mm : 12.80...12.90

Measurement

1/min : 600 Speed

1st pressure hPa : -

Rack travel in m: 10.20...10.40

2nd pressure hPa : 460

Rack travel in m: 12.20...12.30 3rd pressure hPa : 250

Rack travel in m: 10.80...11.00

START CUT-OUT

1/min : 200 (0) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 600 Speed

Del.quantity cm3/ : 145.0...147.0

1000 s: (142.0...150.0)

NO7

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 260.0...300.0 1000 s: (256.0...304.0)

LOW IDLE

Speed

rpm : 250

Rack travel in mm : 6.60...7.00 Del.quantity cm3/: 14.0...20.0

1000 s: (11.0...23.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.70...3.80 : (3.65...3.85) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order : DAF 11.7 d9 : 07.03.88 Test sheet Edition Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Tolerance + - 0 Combination no. : 0 401 846 878 : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PE6P120A320RS3183Z EP type number : 0 411 826 777 rpm: 850 1st speed Governor Rack travel in mm : 12.10...12.20 Governor design. : RQ250/1000PA832-1 : 0 421 801 387 Governer no. Del.quantity cm3/: 19.9...20.1 Customer-spec. information : DAF 100 s: (19.6...20.4) Customer cm3 : 0.5 Engine : WS 225 Spread : 225.0 100 s: (0.9) 1st version kW : 2000 Rated speed rpm : 250.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm: 6.6...7.0 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) Test oil inlet temp. OC : 38...42 Spread cm3 : 0.8 100 s: (1.2) Overflow valve GUIDE SLEEVE POSITION : 1 417 413 025 Control-lever position Degree: -1 Inlet press., bar: 1.50 rpm : 550 Speed Rack travel in mm : 15.20...16.40 Test nozzle holder : 1 688 901 019 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening : 207...210 pressure, bar 1st version rpm : 850 Speed Aneroid pressure h: 1000 Orifice plate : 199.0...201.0 : 0,8 diameter mm Del.quantity 1000 : (196.0...204.0) cm3 : 5.00 Spread Test lines : 1 680 750 067 1000 : (9.00) Outside diameter RATED SPEED x Wall thickness x Length mm : 6.00X1.50X1000 1st version (A) Injection pump setting values Setting point: Speed rpm : 550 Insp. values in parentheses Rack travel in mm: 15.8 Set equal delivery quant. per values ____ Testing: 1st rack travel in: 11.10 BEGINNING OF DELIVERY rpm : 1035...1050 Test pressure, bar: 25...27 Speed

2nd rack travel in: 4.00

rpm : 1120...1150 Speed 4th rack travel in: 1250 Speed rpm : 0.00...1.00 LOW IDLE 1 Setting point w/out bumper spring rpm : 250° Speed ` Rack travel in mm: 6.8 Testing: Speed rpm : 100 Minimum rack trave: 8.30 : 250 Speed Lbw Rack travel in mm : 6.60...7.00 Rack travel in mm : 2.00 rpm : 350...390 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 850 Rack travel in m: 12.40...12.50 2nd speed rpm : 1000 Rack travel in m: 12.30...12.50 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 12.10...12.20
Measurement

Speed 1/min: 600

1st pressure hPa: Rack travel in m: 10.30...10.50
2nd pressure hPa: 370
Rack travel in m: 11.70...11.80
3rd pressure hPa: 240
Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: Speed rpm : 600
Del.quantity cm3/ : 147.0...149.0
1000 s: (144.0...152.0)

BREAKAWAY

1st version 1mm rack travel less than full load rack tr: 11.10

N09

Speed rpm : 1035...1050

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 260.0...300.0 1000 s: (256.0...304.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.60...7.00
Del.quantity cm3/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm3 : 8.00

Spread cm3 : 8.00 1000 s: (12.00)

Remarks:

APPLICATION Omnibus

: 4.00...4.10 : (3.95...4.15) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 9.00...12.00 Note remarks : 6- 3- 5- 2- 4- 1 Firing order Test sheet : MB 11,0 s 9 : 22.04.88 Edition Replaces : 18.12.87 : ISO-4113 : 0-60-120-180-240-300 Test oil Phasing Tolerance + - 0 : 0 401 846 880 : 0.50 (0.75) Combination no. Injection pump Time to cyl. no. : 6 Pump designation : PE6P110A320LS3835-1 EP type number : 0 411 816 755 BASIC SETTING Governor Governor design. : RQ300/1050PA187-19 1st speed rpm : 750 : 0 421 801 428 Governer no. Rack travel in mm : 13.00...13.10 Customer-spec. information Customer : DAIMLER-BENZ Del.quantity cm3/: 12.6...12.8 Engine : 0M441 100 s: (12.2...13.0) 1st version kW : 160.0 Spread cm3 : 0.4: 2100 Rated speed 100 s: (0.7) TEST BENCH REQUIREMENTS rpm : 300.0 2nd speed Rack travel in mm: 8.8...9.0 Test oil Del.quantity cm3/: 1.5...2.1 inlet temp. °C : 38...42 100 s: (1.2...2.3) cm3 : 0.4 100 s: (0.7) Overflow vaive Spread : 1 417 413 025 GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Degree: -1 Overflow quantity min. 1/h: 100...120 rpm : 650 Rack travel in mm : 13.60...14.40 Test nozzle holder assembly : 0 681 343 009 FULL LOAD DELIV. AT FULL LOAD STOP Opening 1st version pressure, bar : 172...175 Speed rpm : 750 : 126.0...128.0 Del.quantity 1000 : (122.5...130.5) Test lines : 1 680 750 015 cm3 : 4.00Spread 1000 : (7.50) Outside diameter x Wall thickness RATED SPEED : 6.00X1.50X600 x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Setting point: rpm : 650 Set equal delivery quant. Speed per values Rack travel in mm: 14.0 Testing: BEGINNING OF DELIVERY 1st rack travel in: 12.00 Test pressure, bar: 25...27

rpm : 1095...1110

Speed

2nd rack travel in: 4.00 Speed rpm : 1150...1180 4th rack travel in: 1300 Speed rpm : 0.00...2.00 LOW IDLE 1 Setting point w/out bumper spring rpm : 300' Speed] Rack travel in mm: 6.9 Testing: rpm : 200 Speed Minimum rack trave: 8.50 Speed : 300 rpm Rack travel in mm : 6.80...7.00 Rack travel in mm : 2.00 rpm : 400...440 Speed FUEL DELIVERY CHARACTERISTICS 1st version rpm : 1050 Speed Del.quantity cm3/: 138.0...142.0 1000 s: (135.0...145.0) cm3 : 7.00 Spread 1000 s: (10.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.00 rpm : 1095...1110 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0) Remarks: :

APPLICATION Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks Test sheet

: PEN 12,2 a : 26.02.88

Edition Replaces

Test oil

: ISO-4113

Combination no. : 0 401 846 882

Injection pump

Pump designation : PE6P120A320RS3206-1

EP type number

: 0 411 826 775

Governor

Governor design. : RQ750PA783-1 Governer no.

: 0 421 801 432

Customer-spec. information

Customer

: VOLVO-PENTA

Engine

: TAMD 122 A

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 019

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 3.50...3.60

: (3.45...3,65)

Rack travel in mm : 9.00...12.00

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - 0

: 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed

Spread

rpm: 700

: 1

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 29.7...29.9

100 s: (29.4...30.2)

cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm : 5.1...5.3 Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.4

100 s: (0.7)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 700

: 297.0...299.0 Del.quantity

1000 : (294.0...302.0)

cm3 Spread

: 5.00 1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 21...29

Testing:

1st rack travel in: 11.40

rpm : 750...755 Speed

2nd rack travel in: 4.00

rpm : 776...789 Speed

4th rack travel in: 850

Speed

rpm : 0.00...1.00

BREAKAWAY

1st version

1mm rack travel less than

N12

full load rack tr: 11.40 Speed rpm : 750...755

INTERMEDIATE RATED SPEED Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 290.0...320.0
 1000 s: (286.0...324.0)

Remarks:

APPLICATION Generator set

: 1-5-3-6-2-4 BOSCH INJ. PUMP TEST SPECIFICATIONS firing order Note remarks : 0-60-120-180-240-300 Test sheet : VOL 10,0q13 Phasing Edition : 29.04.88 Tolerance + - 0 : 0.50 (0.75) Replaces Test oil : ISO-4113 Time to cyl. no. : 1 Combination no. : 0 401 846 883 BASIC SETTING Injection pump Pump designation : PE6P110A320RS3108-1 rpm : 700 1st speed EP type number : 0 411 816 757 Rack travel in mm : 13.90...14.00 Governor Governor design. : RQV250...1100PA649 Del.quantity cm3/: 18.3...18.5 Governer no. : 0 421 813 346 100 s: (18.0...18.8) Customer-spec. information Customer : VOLVO cm3 : 0.4 Spread : THD 102 KB Engine 100 s: (0.7) : 212.0 1st version kW rpm : 250.0 Rated speed : 2200 2nd speed Rack travel in mm: 5.3...5.5

Del.quantity cm3/: 3.0...3.4

100 s: (2.7...3.6)

Spread cm3: 0.3 TEST BENCH REQUIREMENTS Test oil 100 s: (0.6) inlet temp. OC : 38...42 Overflow vaive (B) Setting of injection pump : 1 417 413 025 with governor GUIDE SLEEVE TRAVEL Inlet press., bar: 1.50 1st speed rpm : 250 : 1.10...1.30 Test nozzle holder travel mm : 0 681 343 009 2nd speed rpm : 500 assembly travel mm : 4.10...4.90 3rd speed rpm : 700 Opening. pressure, bar : 172...175 : 6.30...6.70 travel mm 4th speed rpm : 950 : 6.30...6.70 travel mm Test lines : 1 680 750 015 5th speed rpm : 1100 : 7.00...7.50 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION Control-lever position x Length mm : 6.00x1.50x600 Degree: -1 rpm : 1175 (A) Injection pump setting values Speed Rack travel in mm : 15.20...17.80 Insp. values in parentheses Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values BEGINNING OF DELIVERY 1st version rpm : 700 Test pressure, bar: 25...27 Speed Aneroid pressure h: 1200

Del.quantity : 183.0...185.0 1000 : (180.0...188.0)

Prestroke mm

: 3.00...3.10

Rack travel in mm : 9.00...12.00

: (2.95...3.15)

Spread cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 60...68

Testing:

1st rack travel in: 12.90 rpm : 1130...1140 Speed

2nd rack travel in: 4.00

Speed rpm : 1200...1230

4th rack travel in: 1300

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 7...15

Testing:

Speed rpm : 100

Minimum rack trave: 6.80 rpm

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 250...425

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm

hPa : 1200 Pressure Rack travel mm : 13.90...14.00

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.80...10.00 2nd pressure hPa : 235

Rack travel in m: 10.00...10.10 3rd pressure hPa : 870

Rack travel in m: 13.50...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 700 Speed

Del.quantity cm3/: 111.5...114.5

1000 s: (109.0...117.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.90

rpm : 1130...1140 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 160.0...190.0 Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 5.30...5.50

Del.quantity cm3/: 30.0...34.0

1000 s: (27.5...36.5)

cm3 : 3.00 Spread

1000 s: (6.00)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Delivery-valve spring pre-tension = 2.40...2.60 mm.

Permissible alteration from 2.20...2.90

: 4.00...4.10 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 6-3-5-2-4-1 : MB 11,0 s11 Test sheet : 25.03.88 Edition Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Tolerance + - 0 Combination no. : 0 401 846 889 : 0.50 (0.75) Time to cyl. no. Injection pump : 6 Pump designation : PE6P110A320LS3835-1 EP type number : 0 411 816 755 BASIC SETTING Governor rpm: 900 Governor design.: RQV300...900PA524-10 1st speed Governer no. : 0 421 813 549 Rack travel in mm : 12.90...13.00 Customer-spec. information Del.quantity cm3/: 12.6...12.8 Customer : DAIMLER-BENZ : OM 441 100 s: (12.3...13.0) Engine : 150.0 Spread cm3 : 0.41st version kW : 1800 Rated speed 100 s: (0.8) TEST BENCH REQUIREMENTS rpm : 300.0 2nd speed Rack travel in mm: 8.7...8.9 Test oil Del.quantity cm3/: 1.6...2.2 inlet temp. DC : 38...42 100 s: (1.3...2.4) Overflow valve cm3 : 0.4Spread 100 s: (0.7) : 1 417 413 025 (B) Setting of injection pump Inlet press., bar: 1.50 with governor Over flow GUIDE SLEEVE TRAVEL quantity min. 1/h: 100...120 rpm : 320 1st speed : 1.50...1.70 Test nozzle holder travel mm : 0 681 343 009 2nd speed rpm : 400 assembly : 2.30...2.70 travel mm 3rd speed rpm : 945 Openina : 8.30...8.70 pressure, bar : 172...175 travel mm 4th speed rpm: 1000 : 9.40...10.00 travel mm Test lines : 1 680 750 015 GUIDE SLEEVE POSITION Control-lever position Outside diameter x Wall thickness Degree: -1 Speed rpm : 920 Rack travel in mm : 15.20...17.80 : 6.00x1.50x600 x Length mm (A) Injection pump setting values FULL LOAD DELIV. AT FULL LOAD STOP Insp. values in parentheses Set equal delivery quant. per values ____ 1st version Speed rpm : 900

Del.quantity : 126.0...120.0 1000 : (123.5...130.5)

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Spread cm3 : 4.00 1000 : (8.00) RATED SPEED 1st version Control lever position degrees: 50...58 Testing: 1st rack travel in: 11.90 rpm : 955...965 Speed 2nd rack travel in: 4.00 rpm : 1010...1040 Speed 4th rack travel in: 1100 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 16...24 Testing: rpm : 100 Speed Minimum rack trave: 9.50 rpm : 300 Speed Rack travel in mm: 8.00...8.20 CONSTANT REGULATION rpm : 300...500 Speed START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version rpm : 600 Speed Del.quantity cm3/: 124.0...128.0 1000 s: (121.0...131.0) cm3 : 6.00 Spread 1000 s: (8.00) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.90 Speed rpm : 955...965 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0

1000 s: (126.0...154.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: DAO 14,5 a Test sheet Edition : 26.02.88

Replaces

: ISO-4113 Test oil

Combination no. : 0 401 848 084

Injection pump

Pump designation : PE8P110A520/5LS851

: 0 411 818 046 EP type number

Governor

Governor design. : RQ900PA887 Governer no. ` : 0 421 801 433

Customer-spec. information Customer : DAEWOO

: D2848T Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. OC : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10

: (2.95...3.15)

Rack travel in mm : 9.00...12.00

: 8- 7- 2- 6- 3- 5- 4-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 850 1st speed

Rack travel in mm : 11.60...11.70

Del.quantity cm3/: 16.0...16.3

100 s: (15.7...16.5)

: 0.4 Spread cm3

100 s: (0.7)

rpm : 250.0 2nd speed Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.8...2.3 100 s: (1.5...2.5)

cm3 : 0.4Spread

100 s: (0.7)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed

: 160.0...163.0 Deliquantity 1000 : (157.5...165.5)

cm3 : 4.00 1000 : (7.50) Spread

RATED SPEED

1st version

Testing:

1st rack travel in: 10.60 rpm : 900...905 Speed

2nd rack travel in: 4.00

rpm : 940...955

Speed 4th rack travel in: 1000

rpm : 0.00...1.00 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Remarks:

APPLICATION

Generator N19

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 : 8- 7- 2- 6- 3- 5-Firing order 4- 1 Test sheet : MB 14,6 a 4 Edition : 11.03.88 : 18.9.87 : ISO-4113 Replaces Test oil Phasing : 0-45-90-135-180-225-Combination no. : 0 401 848 755 270-315 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PE8P110A320LS3802-10 Time to cyl. no. : 8 EP type number : 0 411 818 710 BASIC SETTING Governor Governor design. : RQ300/1150PA437-3 Governer no. : 0 421 801 230 rpm : 750 1st speed Rack travel in mm : 11.30...11.40 Customer-spec. information Customer : DAIMLER-BENZ Del.quantity cm3/: 9.9...10.1 Engine : 0M422 100 s: (9.6...10.3) 1st version kW : 184.0 Rated speed : 2300 Spread cm3 : 0.4TEST BENCH REQUIREMENTS 100 s: (0.7) rpm : 300.0 Test oil 2nd speed inlet temp. °C : 38...42 Rack travel in mm : 8.2...8.5 Del.quantity cm3/: 1.4...2.0 Overflow valve 100 s: (1.1...2.2) cm3 : 0.4 100 s: (0.7) : 1 417 413 025 Spread Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Over flow Control-lever position quantity min. 1/h: 100...120 Degree: -1 rpm : 650 Speed Test nozzle holder Rack travel in mm : 13.20...14.00 : 0 681 343 009 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 172...175 1st version Speed rpm : 750 : 99.0...101.0 Del.quantity 1000 : (96.5...103.5) Test lines : 1 680 750 015 cm3 : 4.00 Spread 1000 : (7.00) Outside diameter x Wall thickness : 6.00x1.50x600 RATED SPEED x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. Setting point: per values ____ Speed rpm : 650 Rack travel in mm: 13.6 BEGINNING OF DELIVERY Testing: Test pressure, bar: 25...27 1st rack travel in: 10.00

```
Speed
            rpm : 1195...1210
2nd rack travel in: 4.00
            rpm : 1255...1285
  Speed
4th rack travel in: 1350
  Speed
         rpm : 0.00...1.50
LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300 Rack travel in mm : 7.1
Testing:
Speed
            rpm : 100
Minimum rack trave: 8.50
Speed rpm: 300
Rack travel in mm : 7.00...7.20
Rack travel in mm: 2.00
           rpm : 400...440
Speed
TORQUE CONTROL
Dimension a mm :?
Torque control curve - 1st version
1st speed rpm : 750
  Rack travel in m: 11.30...11.40
2nd speed rpm : 1150
  Rack travel in m: 11.00...11.20
FUEL DELIVERY CHARACTERISTICS
1st version
            rpm : 1150
Speed
Del.quantity cm3/: 112.0...116.0
1000 s: (109.0...119.0)
Spread cm3 : 7.00
            1000 s: (10.0)
BREAKAWAY
1st version
1mm rack travel less than
 full load rack tr: 10.00
Speed rpm : 1195...1210
STARTING FUEL DELIVERY
Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
            1000 s: (126.0...154.0)
Remarks:
```

BOSCH INJ. PUMP TEST SPECIFICATIONS	Prestroke mm : 4.004.10 : (3.954.15)
Note remarks	Rack travel in mm : 9.0012.00 Firing order : 8-7-2-6-3-5-
Test sheet : MB 14,7 c 7 Edition : 25.03.88 Replaces : -	4- 1
Combination no. : 0 401 848 781	Phasing : 0-45-90-135-180-225- 270-315 Tolerance + - 0 : 0.50 (0.75)
Injection pump Pump designation : PE8P110A320LS3842 EP type number : 0 411 818 714 Governor	Time to cyl. no. : 8 BASIC SETTING
Governor design. : RQ300/950PA827-6K Governer no. : 0 421 803 098	1st speed rpm: 950
Customer-spec. information Customer : DAIMLER-BENZ	Rack travel in mm : 13.6013.70
Engine : 0M442	Del.quantity cm3/: 13.413.6
1st version kW : 206.0 Rated speed : 1900	100 s: (13.113.8)
Rated speed : 1900 TEST BENCH REQUIREMENTS	100 s: (0.8)
Test oil inlet temp. °C : 3842	2nd speed rpm : 300.0 Rack travel in mm : 8.89.0 Del.quantity cm3/ : 1.52.1
Overflow valve : 1 417 413 025	100 s: (1.22.3) Spread cm3 : 0.4 100 s: (0.7)
Inlet press., bar : 1.50	(B) Setting of injection pump
Overflow quantity min. 1/h: 100120	with governor GUIDE SLEEVE TRAVEL
Test nozzle holder assembly : 0 681 343 009	1st speed rpm : 300 travel mm : 1.902.20 2nd speed rpm : 500
Opening pressure, bar : 172175	travel mm : 5.505.60 3rd speed rpm : 775 travel mm : 6.206.40
Test lines : 1 680 750 015	4th speed rpm : 950 travel mm : 7.307.70 5th speed rpm : 1020
Outside diameter	travel mm : 9.5010.00
x Length mm : 6.00x1.50x600	GUIDE SLEEVE POSITION Control-lever position
(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values	Degree: -2 Speed rpm : 600 Rack travel in mm : 14.7015.70
BEGINNING OF DELIVERY	FULL LOAD DELIV. AT FULL LOAD STOP
Test pressure, bar: 2527	1st version Speed rpm : 950

Del.quantity : 134.0...138.5) Spread cm3 : 4.00 1000 : (8.00) RATED SPEED 1st version Setting point: Speed : 600 rpm Rack travel in mm: 15.2 Testing: 1st rack travel in: 12.50 rpm : 995...1010 Speed 2nd rack travel in: 4.00 rpm : 1055...1085 Speed 4th rack travel in: 1300 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300° Speed Rack travel in mm: 8.9 Testing: rpm : 200 Speed Minimum rack trave: 11.50 Speed rpm : 300 Rack travel in mm : 8.80...9.00 Rack travel in mm: 3.00 rpm : 480...530 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 950 Rack travel in m: 13.60...13.70 2nd speed rpm : 500 Rack travel in m: 12.90...13.10 3rd speed rpm : 750 Rack travel in m: 13.10...13.30 FUEL DELIVERY CHARACTERISTICS 1st version : 500 Speed rpm Del.quantity cm3/: 117.0...120.0 1000 s: (114.0...123.0) cm3 : 8.00 Spread 1000 s: (11.0) : 750 Speed rpm Del.quantity cm3/: 122.0...126.0 1000 s: (119.0...129.0) cm3 : 8.00 Spread 1000 s: (11.0)

1st version 1mm rack travel less than

full load rack tr: 12.50 rpm : 995...1010 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 Prestroke mm : (3.95...4.15) Note remarks Rack travel in mm : 9.00...12.00 : 8- 7- 2- 6- 3- 5-Firing order 4- 1 Test sheet : MB 14,7 L : 29.04.88 Edition Replaces Test oil : ISO-4113 Phasing : 0-45-90-135-180-225-Combination no. : 0 401 848 798 270-315 Tolerance + - 0 : 0.50 (0.75) Injection pump Pump designation : PE8P110A320LS3846 Time to cyl. no. : 8 EP type number : 0 411 818 717 BASIC SETTING Governor Governor design. : RQ300/1050PA187-21 Governer no. : 0 421 801 438 rpm: 1050 1st speed Rack travel in mm : 13.50...13.60 Customer-spec. information : DAIMLER-BENZ Customer Del.quantity cm3/: 15.4...15.6 Engine : 0M442 100 s: (15.1...15.8) 1st version kW : 213.0 Rated speed : 2100 Spread cm3 : 0.5TEST BENCH REQUIREMENTS 100 s: (0.8) rpm : 300.0 Test oil 2nd speed inlet temp. °C : 38...42 Rack travel in mm: 8.8...9.4 Del.quantity cm3/: 1.4...2.0 Overflow valve 100 s: (1.1...2.2) : 1 417 413 025 cm3 : 0.4Spread 100 s: (0.7) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Over flow Control-lever position Degree: -1 quantity min. 1/h: 100...120 rpm : 650 Speed Rack travel in mm : 13.80...14.60 Test nozzle holder : 0 681 343 009 assembly FULL LOAD DELIV. AT FULL LOAD STOP Opening pressure, bar : 172...175 1st version Speed rpm : 1050 : 154.0...156.0 Del.quantity 1000 : (151.5...158.5) Test lines : 1 680 750 015 : 5.00 Spread cm31000 : (8.50) Outside diameter x Wall thickness : 6,00X1,50X600 RATED SPEED x Length mm (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Setting point: per values : 650 Speed rpm Rack travel in mm: 14.2 BEGINNING OF DELIVERY

Testing:

1st rack travel in: 12.50

Test pressure, bar: 25...27

Speed rpm : 1095...1110 2nd rack travel in: 4.00 Speed rpm : 1125...1155 4th rack travel in: 1300 Speed rpm : 0.00...2.50 LOW IDLE 1 Setting point w/out bumper spring Speed rpm: 300 Rack travel in mm: 9.1 Testing: Speed rpm : 200 Minimum rack trave: 10.50 Speed rpm: 300 Rack travel in mm : 9.00...9.20 Rack travel in mm : 2.00 rpm : 370...430 Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750
Del.quantity cm3/ : 128.0...132.0
1000 s: (125.0...135.0) cm3 : 8.00 Spread 1000 s: (13.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.50 Speed rpm : 1095...1110 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 18,3 h : 07.03.88 Edition Replaces : 2.12.86 Test oil : ISO-4113

Combination no. : 0 401 849 714

Injection pump

Pump designation : PE10P120A320LS3829

EP type number : 0 411 829 703

Governor

Governor design. : RQV350...900PA815

Governer no. : 0 421 813 557

Customer-spec. information

Customer : DAIMLER-BENZ

: OM 423 LA Engine

: 309.0 1st version kW Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 130...150

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm

: (3.95...4.15) Rack travel in mm : 9.00...12.00

: 10- 9- 4- 1- 8- 7-Firing order

6- 3- 5- 2

: 0-45-72-117-144-189-Phasing

216-261-288-333

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

rpm: 880 1st speed

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 16.9...17.1

100 s: (16.6...17.4)

cm3 : 0.5 Spread

100 s: (0.8)

rpm : 350.0 2nd speed

Rack travel in mm: 4.5...4.8 Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLESVE TRAVEL

rpm : 350 1st speed

: 1.10...1.30 travel mm

rpm : 400 2nd speed

: 1.70...2.10 travel mm

3rd speed rpm : 600

: 3.10...4.20 travel mm

rpm : 900 4th speed

travel mm : 8.20...8.40

5th speed rpm : 970

: 9.30...10.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 900 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 880 Speed Aneroid pressure h: 700 Del.quantity : 169.0...171.0

1000 : (166.0...174.0)

: 5.00 Spread cm3 1000 : (8.00)

RATED SPEED

1st version Control lever

position degrees: 58...66

Testing:

1st rack travel in: 9.80 rpm : 915...925 Speed

2nd rack travel in: 4,00 Speed rpm : 945...975 4th rack travel in: 1050 rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 5...13

Testing:

rpm : 100 Speed Minimum rack trave: 6.50 : 350 rpm

Rack travel in mm : 4.50...4.80

CONSTANT REGULATION

rpm : 350...450 Speed

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm hPa : -Pressure

Rack travel mm : 9.90...10.20

Measurement

1/min : 500 Speed

1st pressure hPa : 420

Rack travel in m: 10.40...10.60

START CUT-OUT

1/min : 270 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

N27

Aneroid pressure h: 700 rpm : 600 Speed

Del.quantity cm3/: 166.0...170.0

1000 s: (163.0...173.0)

Spread cm3 : 8.001000 s: (12.0)

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 138.0...140.0 1000 s: (135.0...143.0)

cm3 : 8.00 Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80

rpm : 915...925 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Remarks: